CHAPTER 6

SUMMARY & CONCLUSION

In the modern world of digital devices and the internet, electronic display devices have become an integral part of daily living at home, at work, during leisure time and on the move. The use of desktop, laptop and tablet, smartphones and electronic reading devices has become ubiquitous. It should also be born in mind that the display of digital electronic display is not confined to adults, adolescents and older population. Although, this has enhanced the overall work tasks, but has led to an increased number of subjects complaining of various symptoms of ocular discomforts. Tear evaporation is dependent on the palpebral fissure width and humidity of surrounding. Wider palpebral fissure increases evaporative rate leading to decreased tear stability and thus dry symptoms may further leads to Computer Vision Syndrome (CVS) and affects the quality of life. CVS is one of the major problems with VDT users and DED has been considered as a major contributor to it. Using visual display terminal devices has led to various problems of eyes like dry eye disease (DED), tired eyes, eye strain, redness, sensitivity to light, irritation and blurring of vision etc. All together, these symptoms are referred as CVS.

DED is considered as one of the common eye related problem in today’s life. It is one of the common sources of discomfort that influences life of individual as well as its quality. This is a problem of tear film caused by various etiologies that result in ocular discomfort, tear film instability and disturbance of vision.

The burden of DED has impact on visual, physical, social functioning, occupational productivity and quality of life. The socioeconomic status (SES) scale is portrayed as the circumstance of individual, families and various aggregates with respect to the capacity to make or use items that are esteemed in our overall population. SES is widely recognized as one of the important factors that influence the health conditions of an individual or a family. There seems to be a significant impact of SES on a multitude of diseases, including cardiovascular diseases, respiratory diseases, mental health disorders and various ocular diseases. Several studies conducted in health-related fields require an evaluation of the SES scale and consider it during the analysis of the data. These scales are vital part in the evaluation of social class of an
individual/family, which can influence illness causing factors and it is one among significant pointers to assess the health status and wholesome status of a family. The use of VDT is on the rise to work places due to growing trend towards digital India. The result clearly rejected null hypothesis and significant change in tear film of VDT and non-VDT were found. Therefore tear film assessment which the help of subjective and objective test are required in order to early diagnose and help in therapeutic interventions by potentially increasing treatment efficacy and safety.

The major key findings of the present study are summarized as follows:

1. More than half of the VDT users were affected with CVS where mean number of hours of computer use was 9.02±2.96 hours per day and high CVS score was found in 21-25 years age group. It was also seen that there was no significant association between CVS with number of working hours on computer per day. There was statistically significant higher CVS score in female compared to male. All the classes of SES were affected with CVS but upper lower class were affected more.

2. Blink rate analysis have shown that decreased blink rate and increased palpebral size during different gaze position at VDT use have shown to be contributing factors of DED. Tear film assessment showed VDT users were more prone to dry eye compared to non-VDT users.

3. VDT users were found more symptomatic for dry eye compared to non-VDT users where there was statistically significant difference seen in both the groups. Younger population (15-25 years) was more symptomatic for DED compared to other age group. Symptoms of daily activities like driving at night, working on Computer or VDT and watching TV was seen to be more affected in all subjects especially 26-30 years of age group.

4. OSDI score showed lower section of SES class (Upper lower class and lower middle class) of VDT and non-VDT subjects were more symptomatic for DED.

5. Blink rate of VDT users were more affected for dry eye than non-VDT users and risk of blink getting affected was found more in VDT users. Decreased blink rate was also seen in younger age group (15-20 years). According to gender distribution blink rate of male was affected more in both VDT and non-VDT users.

6. UC of SES class also showed reduced blink rate in both group of VDT and non-VDT users.
7. There were no statistically significant changes found in meibography in between VDT and non-VDT users but lower middle class and upper lower class of SES showed more affected meibomian gland in VDT users.

8. The result in the present study showed, poor tear film stability in VDT users compared to non-VDT users and SES showed upper class and upper middle class of VDT users and lower middle class and upper class of non-VDT users were more affected.

9. TMH was clinically more affected in VDT than non-VDT users but there was no statistically significant difference seen among both VDT and non-VDT users. There was statistically significant difference in 15-20 years age group among VDT and non-VDT users.

10. In corneal staining test, clinically VDT users were more affected with dry eye than non-VDT users but there was no statistically significant difference seen in both the groups. Corneal staining was affected more in lower middle-class group in both VDT and non-VDT users.

11. Schirmer test revealed VDT users were more affected with decreased tear production compared to non-VDT users and there was statistically significant difference seen in both the groups. Younger population (15-20 years) was also seen to have reduced Schirmer’s score making them prone to dry eye. Upper lower class of VDT and lower middle class of non-VDT users also showed lower Schirmer’s score making them vulnerable to tear film instability.

In conclusion, tear film changes leading to ocular surface changes which is going to increase each passing day due to increased digitalization. The side effects and signs are increasingly pervasive among VDT users yet at the same time the predominance is generally being ignored. If the problem persisted it may reduce job satisfaction and performance. SES is also generally used in network studies and is concentrated to examine the economic status of the family, which is also used as a variable to understand its impact on different diseases and risk factors. Tear film instability was seen in different classes of SES. It was found that low SES was more prone to DED and can be recognized as one of the risk factors for DED. Therefore, DED is one of the most common eye problems and its symptoms are the main reasons why people seek help of an eye care practitioners. Along with the numerous risk factors associated with dry eye, the use of VDT has been identified as a most potential risk factor. Tear film changes found in VDT users and also various classes of SES with increased probability of DED will encourage...
eye care practitioner for tear film assessment for taking consideration of the SES for better treatment, prognosis, awareness and improved quality of life.

The study has some limitations that should be reflected upon while interpreting its findings. A higher number of respondents, general health impact and binocular vision assessment could better justify the analysis. The data used in the present analysis derives from only one part of India (North) which may not allow generality of the results to other regions of the country. Better understanding of the computer/digital screen-related health can be obtained if the study is conducted across the country or countries so that the cultural impact on the health issues could be scrutinized and also the various confounding factors like poor ergonomics and environment could be controlled during VDT use.