In the last decade the uses of VDT have increased for various purposes. People have been using it for work and entertainment. Present study was conducted among 144 VDT users and 144 non-VDT users and the prevalence of computer vision syndrome found in this study was 65.28%. The findings of the study were supported by earlier study done in Malaysia [196]. Similar prevalence (67.2%) of CVS was found in a study done on south Asian VDT users [197]. An investigation done in Chennai among medical and engineering students and discovered that prevalence of CVS to be higher in engineering students working mostly on VDT (80.3 %) [3]. This is conceivably because of the association of neck and shoulder torment as a side effect of CVS however in present investigation we included just eye/ocular side effects separated from headache. In the present examination CVS score were observed to be higher in the subjects who utilized VDT for longer span however this was statistically not significant which is supported by past study done in 2014 on computer experts [1]. The researcher has discovered that significant reason for CVS is draw out utilization of VDT without any precaution. The risks of CVS are higher among VDT users who had less successive or no break in between work [198]. Spending more time on the monitor immediately additionally can prompt issue of shifting focus on screen, reports and keyboard. The consistent procedure of drifting and refocusing on fuzzy pixel of texts on the screen can leave eyes stressed and exhausted [199]. Past studies have recommended that 64% and 90% of the VDT users experiences ocular side effects such as: eye fatigue, migraines, visual uneasiness, dry eye, double vision and blurring of vision either at close or when looking into the distance after prolonged use of digital device [200]. These indications might be created by the association of the workstation condition, lacking wetting of the corneal surface, near vision variations from the norm, (for example, accommodation, vergence anomalies) or unseemly refractive remedy. Rossignol et al reported that the predominance of visual side effects expanded altogether in people who went through over four hours day by day chipping away at video show terminals (VDTs) [201]. Rosenfield in 2009 proposed that CVS is not related with accommodative facilities from the norm since no huge relationship was seen among symptoms and either monocular or binocular accommodative facility [202]. Collier and Rosenfield in 2006 also found no significant difference in the accommodative
reaction estimated over the span of computer work in both symptomatic and asymptomatic individuals. One conceivable clarification is that the most elevated symptoms were tired eyes and eye strain which are really identified with dry eye rather than being brought by an oculomotor variation from the norm [203]. A significant difference was found between vergence dysfunction and dry eye symptoms [202]. Dry eye has recently been referred to as a noteworthy contributor of CVS. A study done in 2008 found longer times of computer work were likewise connected with increased risk of DED [204]. Blehm et al proposed that dry eye could either be brought about by a diminished blink rate while VDT use or prolonged exposure of cornea and wider palpebral aperture delivered by the primary gaze look while viewing digital screen [205]. It has additionally been seen that blink rate diminishes as text size and contrast are reduced [206] or the subjective interest of the task increases [207].

Indications of dry eye may incorporate visual uneasiness and dryness, grittiness, or scratchy, burning sensation, stinging, tired and other visual problems. Therefore, the manifestations of "tired eyes" and "eye fatigue" are predictable with dry eye disorder [200]. The tear film assumes an essential job in nourishing, lubricating and ensuring the visual surface [208]. Thus, any irregularity of tear film may lead to the groups of symptoms leading to dry eye disease. In this investigation 73.61% of VDT subjects were having dry eye and the discoveries of the examination was supported by the prior investigation where over 4 hours of VDT uses demonstrated prevalence of 72.1% [209, 210]. Another examination directed on 112 noncontact lens users using VDT found that higher number of female (73%) compare to male (68%) were affected with the symptoms of dry eye disease [211]. As per recent survey OSD causing DED is increasingly predominant in VDT respondents and comparable finding was seen in our population [212, 213]. However, we likewise observed OSD to be progressively common in more youthful age gathering of 15-25 years old. This might be clarified by past studies showing that increased awareness about disease in younger age and higher concentration level with poor ergonomics due to increased uses of digital devices [214]. Different sex-explicit (biologic) and gender orientation related (sociocultural) factors influence dry eye. Women may look for consideration for dry eye frequently than men and are almost certain than men to report other health related issues, for example, pain or discomfort related with different conditions, including dry eye [215]. In the present study, statistical difference was found among the genders in the OSDI scores. Severity of self-reported symptoms was higher in female but number of DED was higher in male. Females are influenced more usually than male in most studies [101, 216, 217]. In present study we also observed that higher symptoms of daily activities like driving at night, working with
computer and watching TV which has been well supported by earlier study done in 2013 where vision related quality of life was affected in subjects with DED. The possible explanation could be increased attention demand, reduced blinking, increased evaporative rate due to low humidity (AC) in car, working place or while watching TV accelerate these symptoms. It was also reported that DED degraded optical quality of eye due to increased tear film related aberrations. Present study also observed the influence of environment of ocular symptoms. Subjects were more symptomatic during windy condition as increased evaporative rate, allergic/sensitivity to dust and allergens has been found to accelerate ocular symptoms [218, 219]. We observed a significantly higher occurrence of DED in males where studies done in past also reported males to be more commonly affected than females [212, 220]. In this study young female were included where postmenopausal and older age women were excluded this could be the possible reason for higher prevalence of DED in male compared to female. The mean blink rate of VDT and non-VDT users were 5.88 and 11.12 respectively which is found to be lesser in VDT users than non-VDT users. Many researchers believed that diminished blink rate could be the possible reason for dryness among VDT users. Examiners have recommended that blink rate might be decreased by poor contrast, decreased text dimension, increased cognitive interest and contact lens use. Incomplete blinking, prompting insufficient distribution of tear film has additionally been proposed as a reason for dry eye disease among visual display terminal users [206, 207, 221, 222]. A few studies have demonstrated that blink rate is diminished among visual display terminal users [223]. Good blinking habits and the use of VDT terminals beneath eye level decreases the interpalpebral aperture exposure to environment and hence prevent evaporation of tears [177]. One conceivable clarification is that the attention demand is seen higher among the VDT users which decreases the blink rate [222]. All these studies support our investigation as mean blink rate of VDT was 5.88 per min. The Prevalence of dry eye symptoms had been observed to be variable from the past population based as well as clinic-based investigations. Studies have reported the prevalence of dry eye varies from 5% to 50% [129, 224]. Yazici demonstrated statistically significant difference in dry eye disease of VDT users and controlled group [225].

In the present study, OSDI, Blink rate, TBUT and Schirmer test were observed to be statistically significant (p <0.05) in between VDT and non-VDT users. Decreased Schirmer’s score were seen in male, female and youth (15-20 years of age) of VDT users comparted to non-VDT users. The study done on VDT users of Indian subcontinent have clearly stated that DED being symptomatic, multifactorial aetiology with increased VDT use can lead to
Discussion...

decrease tear volume during Schirmer test [226]. We also found the good association between the subjective symptoms’ questionnaire and objective test for tear film. In spite of the fact that predominance of DED in VDT users were high however risk of developing DED disease in non-VDT users are also seen because of multifactorial aetiology of the disease [129]. Increased use of computers, laptops, tablets, smart phones and television has prompted an expansion of DED in the more youthful population [212].

VDT respondents (100%) and non-VDT respondents (51.21%) were having DED according to the results of the OSDI evaluated and the subjects belonged to upper lower class of SES. Though the distribution of subjects in this class of SES was very less but the outcomes are consistence with past investigations demonstrating that individuals with low SES are increasingly inclined to create visual issues and poor health outcomes [227, 228]. Mean blink rate was found to be less in UC, but it was found to be more affected in middle and lower class of VDT users and there was a significant difference in upper class, upper lower class of VDT and non-VDT users in Schirmer’s test. The poor Schirmer score in VDT users has been linked with decreased blink rate and increased evaporation from ocular surface leading to ADDE. Meiboscore were also found to be more affected in lower SES class of VDT users than non-VDT users. Meibography showed statistically significant difference in lower middle class and upper lower class of VDT and non-VDT users (p<0.05). One of the main reasons for EDE is considered as MGD. The use of VDT leads to poor blinking habit and increased evaporative rate which could be a possible reason for increased meiboscore in these class of SES [16]. It is also being observed that lower SES class are more prone to environmental exposure and poor dietary supplements like Omega-3 which could also affect MG [229]. 100% of upper lower class and 53.33% of lower middle class of VDT users were having DED and 56.67% of lower middle class and 43.10% of upper lower class of non-VDT users were having DED. Higher incidence of dry eye in this group could be due to unequal and less subjects in these groups but it cannot be denied from past investigation which clearly showed that lower SES class with poor educational attainment were likely to have diabetes mellitus, hypertension, heart diseases, and a sleeping disorder as well as lower score for general health [25]. They found 86.2% patients of the low education group had low income to pay bills and did not have a standard salary. Another possible clarification could be patients with higher education are more aware of the fact that various diseases, potentially giving more consideration to their surroundings in everyday life, health care services, cleanliness, lifestyle, improved eating regimen and improving quality of life.
SES is a significant indicator of wellbeing. It is as often as implicated as a contributor to the wellbeing observed among individual or society [26, 27]. The relation between low SES and higher blindness rate is very well known from various data. This is clearly seen from the higher prevalence of blindness in the poorer countries of the world compared with the developed countries [29, 30, 230, 231]. Reports clearly shows that the nation with low socioeconomic status have higher prevalence of blindness and visual impairment with limited/poor access to health services [30, 232]. Studies have found an association of socioeconomic status with the prevalence of eye diseases that can potentially lead to blindness. Examples of these eye diseases are trachoma, vitamin A deficiency, and diabetic retinopathy [233]. Trachoma has always been associated with poverty, poor sanitation, and low socioeconomic status [32]. Present study so far is the only study which provide and insight into SES of ocular surface disorder subjects, indicating that effect of SES on prevalence of dry eye disease especially in different SES group and due to the multifactorial nature of the tear film components, there is no single clinical test which is sufficiently sensitive or specific to diagnose dry eye and predict the most accurate management strategy.