



ORIGINAL RESEARCH PAPER

Ophthalmology

A CROSS-SECTIONAL STUDY ON PREVALENCE OF DRY EYE SYNDROME AMONG MEDICAL AND NURSING STUDENTS

KEY WORDS: Ocular Surface Disorder Index (OSDI), Tear film Breakup Time Test (TBUT), Schirmer test

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ABSTRACT

Background and objective: Dry Eye Disease (DED) cause profound ocular morbidity, eventually reducing student's academic performance. It is believed to be one of the most common ocular disorders in the student life. Those attending the International Dry Eye Workshop (DEWS) in 2007 defined dry eye as a multi-factorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear-film instability, with potential damage to the ocular surface (Anon., 2007). The aim of the study is to find out the prevalence of Dry Eyes Syndrome among the Medical and the Nursing students.

Materials& methods: The analysis was done based on a cross sectional study of two months duration that was conducted on second- and third-year students from the medical and nursing college (200 each). The students who had a recent history of use of ocular drugs or systemic drugs like anti-hypertensives and anti-cholinergic, who suffer from connective tissue disorders and allergic disorders or with a habit of alcohol consumption and smoking are excluded from the study.

Results: The Ocular Surface Disease index (OSDI) scores, Tear film Breakup Time (TBUT) scores and Schirmer's scores were abnormal in 26%, 39% and 19% of medical and 14%, 20% and 8% of nursing students respectively which were statistically significant ($p < 0.5$).

Conclusion: The medical fraternity is at a relatively higher risk to develop Dry Eye Disease as compared to the nursing fraternity due to greater exposure to x-ray screens, excessive use of laptops for research purposes, use of smart teaching techniques, increased hours of teaching involved, constant use of microscopy for laboratory purposes and teaching practices in air-conditioned rooms (which in itself causes EDE). Once the DED develops there is profound morbidity which eventually reduced the overall performance of the individual in academics as well as day to day activities. Thus, we need to focus more on the prevention of the disease occurrence and if at all the disease has occurred thorough focus should be on the required interventions to prevent further worsening of the situation.

INTRODUCTION

Dry eye disease (DED) is defined as a multi-factorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear-film instability, with potential damage to the ocular surface, substantially affecting the quality of life of an individual.^[1,2,3,4,5,6]

Besides the well-known diseases accounting for its aetiology, various studies justify the fact that prolonged and excessive exposure to the digital screens can pave a path to development of dry eye disease.^[7,8,9] Also, ergonomic factors as working hours, lighting condition and air-conditioning have been incriminated.^[10,11,12,13] Students are more prone to this hazard because of the exhaustive medical curriculum, peer pressure and societal trends. A study done on medical students in Egypt (2018) observed that 86% of the medical students complained of one or more of dry eye disease manifestations like dry eye, headache, blurred vision, eye strain, and eye redness.^[14]

This study purported to find out the prevalence of dry eye disease in two groups of students pursuing different courses (MBBS and Nursing), residing in the same tropical environment, thus eliminating bias. This is the first such research work being done in this place in the only medical college established here.

OBJECTIVE OF THE STUDY

The aim of the study is to find out the prevalence of Dry Eyes Syndrome among the Medical and the Nursing students.

MATERIALS AND METHODOLOGY:

A cross-sectional study was done on consenting 2nd and 3rd year students from both medical and nursing students (200 each) during August and September 2018, after duly obtaining Institutional Ethical Board clearance. Students with recent history of use of ocular drugs, systemic drugs like anti-cholinergic, anti-hypertensive, corticosteroids, students with family history of connective tissue disorders, allergy and students who smoked or consumed alcohol were excluded from the study.

Study began with distribution of Ocular Surface Disease Index (OSDI) questionnaire to the subjects who gave consent based on which they were classified as having mild, moderate, severe DED or no disease, fulfilling the primary objective. The secondary objective of assessing the tear film stability and secretion in patients with symptoms of DED was done by making use of Tear film breakup time test and Schirmer's test. The results were subjected to statistical tests of significance.

OBSERVATIONS AND RESULTS

Clinically significant dry eye disease was seen in 26.5% and 14% of medical and nursing students respectively. [Table-I]

Table-I: OSDI based dry eye grading in the two groups

			OSDI				Total	Chi-square	df	p- value
			Normal	Mild	Moderate	Severe				
Group	Medical	Count	145	22	15	18	200	25.322	3	<.001*
		% within Group	72.5%	11%	7.5%	9.0%				
	Nursing	Count	172	23	5	0				
		% within Group	86.0%	11.5%	2.5%	0.0%				
Total		Count	317	45	20	18	400			
		% within Group	79.3%	11.3%	5.0%	4.5%				

**: Significant at 1% level of significance.

Table- II: Tear Film Break Up Time Scores in the study groups

			TBUT		Total	Chi-square	df	p- value
			Abnormal	Normal				
Group	Medical	Count	78	122	200	15.451	1	<.001*
		% within Group	39.0%	61.0%	100%			
	Nursing	Count	40	160	200			
		% within Group	20.0%	80.0%	100%			
Total		Count	118	282	400			
		% within Group	29.5%	70.5%	100%			
**. Significant at 1% level of significance.								

**: Significant at 1% level of significance.

Schirmer's test scores were significantly low in 19% and 13.5% of medical and nursing students respectively. [Table-III]

Table-III: Schirmer's Score readings in the study groups

			SCHIRMER'S READING				Total	Chi-square	df	p-value
			Normal	Mild	Moderate	Severe				
Group	Medical	Count	162	24	10	4	200	47.079	3	<.001*
		% within Group	81.0%	12%	5%	2.0%	100%			
	Nursing	Count	184	12	4	0	200			
		% within Group	92.0%	6%	2.0%	0.0%	100%			
Total		Count	346	36	14	4	400			
		% within Group	86.5%	9%	3.5%	1%	100%			
**: Significant at 1% level of significance.										

**: Significant at 1% level of significance.

The comparative OSDI, TBUT and Schirmer's values were significantly and positively correlated with the probability of clinical diagnosis of a dry eye ($P<0.001$).

DISCUSSION

The significantly abnormal OSDI Scores, Schirmer's scores and TBUT values in the medical students indicate towards the fact that though the environmental factors to which both the category of students were exposed were similar, there is a significant difference in the incidence of dry eye syndrome in them. This can be attributed to the fact that the students pursuing medicine have a greater exposure to x-ray screens, excessive use of laptops and personal computers for research purposes, use of smart teaching techniques, increased hours of teaching involved in their daily schedule, constant use of microscopy for laboratory purposes and teaching sessions in air-conditioned rooms.

Iqbal et al (2018) found that 86% of the medical students utilizing digital screens for 3 hours or more on a daily basis were complaining of one or more of dry eye manifestations.^[14] A study by Logaraj et al (2013) concluded that the prevalence of computer vision syndrome (CVS) related dry eyes was 81.9% and 78.6% among engineering and medical students respectively with a significantly higher proportion of engineering students (40.9%) using computers for 4-6 hours/day as compared to medical students (10%).^[15]

Conforming to the afore-mentioned studies, our study stands in favour of the point that due to a relatively greater exposure to digital screens in medical students, they lie at a greater risk of developing DED as compared to their nursing counterpart.

CONCLUSION

Hence from the above research work we reach to the conclusion that the medical fraternity is at a relatively higher risk to develop Dry Eye Disease as compared to the nursing fraternity, chiefly attributed to their increased digital screen exposure.

Once the DED develops there is profound morbidity in the form of eye strain, headache, blurred vision, neck and shoulder pain, fatigue and eye redness, which eventually reduces the overall academic performance of the individual.

Ergonomic measures like proper room lighting, adequate

adjustment of the distance between the eye and the digital screen, sitting posture, optimal screen illumination coupled with awareness sessions and education regarding the importance of frequent blinking and periodic ocular examination are advocated to curb this menace.

This study recommends the involvement of a larger population of students from different professional backgrounds in order to find the hidden morbidity of the disease. A future elaborate research work must be done on this topic including both subjective and objective examination tools.

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