

Impact of dry eye symptoms among professional college students of Agartala

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ABSTRACT

Questionnaire based study was done to find out the extent of ocular difficulties students have to suffer by their daily activities. The study was done in Tripura Institute of Paramedical Sciences. Aim of the study is to determine how dry eye hamper the study of professional students. The objective of our project is to identify the risk factor of dry eye among college students. Objectives of the study, to assess the prevalence of dry eye syndrome (DES) among college students. To identify risk factors associated with DES in this demographic. To evaluate the impact of DES on academic performance and quality of life among college students. Questionnaire based survey method total 135 students were collected and included from the college eye OPD of the Tripura Institute of Paramedical Sciences, within the campus from September 2023 to February 2024. The sample has been collected on the basis of demographic (age, gender), tear secretion level ($> 5\text{mm}$ & $< 10\text{mm}$) and the age group of 18 to 22 years' professional college going students. We took this group of criteria because the student of these groups highly effected by many kinds of ocular symptoms. A questionnaires sheet was supplied to all the students, which was included the ocular complications, clinical examination, where 76 (56.30%) were girls and 59 (43.70%) were boys. Discussion may highlight the prevalence of dry eye among professional college students, emphasizing that it is a significant issue affecting a notable portion of the student population. The data might provide insights into the factors contributing to the development of dry eye, such as prolonged screen time or lack of proper eye care practices. It is very important to make sure that, the eyes must be checked often by any optometrists at least once in a month. When using digital screens excessively, the eyes must have a break. Follow the 20-20-20 rule (every 20 minutes, take a 20 second break and focus your eyes on something at least 20 feet away). Eat green leafy vegetables. Avoid sunlight, for that use sunglasses. Use protective ARC glasses for computer works. Avoid using mobile phones in dark room. Drink sufficient water regularly.

KEY WORDS: *dry eye, digital devices, ocular health, professional college students, DES, Agartala,*

INTRODUCTION

Dry eye is a multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, Evaporative dry eye due to Meibomian gland dysfunction is one of the common clinical problems encountered in ophthalmology. Inadequate quantity or quality of lipids produced by the Meibomian glands leads to faster evaporation of the pre ocular tear film and leads to dry eye disease.

Dry eye is a condition that results in dryness of the conjunctiva and cornea due to decreased tear function of tear glands or rapid evaporation of tears. On the basis of these underlying pathologic processes dry eye disease could be classified as tear deficiency or hypo secretive dry eye which includes Sjögren's syndrome and non-Sjögren's tear deficiency and evaporative or hyper evaporative dry eye.

Aqueous-deficient dry eye has two major groupings: Sjögren's syndrome and non-Sjögren's syndrome dry eye. Sjögren's syndrome is an exocrinopathy in which the lacrimal and salivary glands as well as other organs are affected by autoimmune processes and can be divided into two subgroups: primary and secondary Sjögren's syndrome. Conversely non-Sjögren's syndrome is a form of tear deficient dry eye due to lacrimal dysfunction, where the systemic autoimmune characteristic of Sjögren's syndrome has been excluded.

Evaporative dry eye may be intrinsic as a result of Meibomian lipid deficiency, poor lid congruity and lid dynamics, low blink rate, and the effects of drug use. Extrinsic evaporative dry eye embraces those aetiologies that increase evaporation including vitamin A deficiency, the action of toxic topical agents such as preservatives (benzalkonium chloride), and topical anaesthesia. Patient wearing contact lenses is more prone to have dry eye symptoms. Disease of the exposed ocular surface including allergic eye disease may lead to destabilization of the tear film and add a dry eye component to the ocular surface.

Dry eyes are caused by a variety of reasons that disrupt the healthy tear film. Tear film has three layers: fatty oils, aqueous fluid and mucus. This combination usually keeps the surface of your eyes lubricated, smooth and clear. Problems with any of these layers can cause dry eyes.

Reasons for tear film dysfunction are many, including hormone changes, autoimmune disease, inflamed eyelid glands or allergic eye disease. For some people, the cause of dry eyes is decreased tear production or increased tear evaporation.

Dry eyes can occur when you're unable to produce enough liquid tears, also called aqueous fluid. The medical term for this condition is keratoconjunctivitis sicca. Common causes of decreased tear production include: aging; Certain medical conditions including Sjogren's syndrome, allergic eye disease, rheumatoid arthritis, lupus, scleroderma, thyroid disorders or vitamin A deficiency; certain medicines, including antihistamines, decongestants, hormone replacement therapy, antidepressants, and medicines for high blood pressure, acne, birth control and Parkinson's disease; corneal nerve desensitization caused by contact lens use, nerve damage or laser eye surgery, though symptoms of dry eyes related to this procedure are usually temporary.

Signs and symptoms, affected by dry eye are: a stinging, burning or scratchy sensation in the eyes; stringy mucus in or around the eyes; sensitivity to light; eye redness; a sensation of having something in the eyes; difficulty wearing contact lenses; difficulty with night-time driving; watery eyes, which is the body's response to the irritation of dry eyes; blurred vision or eye fatigue. Treatment of the dry eyes are: using artificial tear to lubricate the eye; surgical procedure, punctal plug is used to treat dry eyes; avoid smoking; take breaks during long task; taking adequate amount of food containing vitamin.

METHODOLOGY

Aim of the study: The aim of the study is to determine how dry eye hamper the study of paramedical students. The objective of the project is to identify the risk factor of dry eye in the professional college students.

Area of the study: Tripura is one of the smallest states in North Eastern part of India. The state surrounds its border with Assam, Mizoram and Bangladesh. The name of Tripura is derived from 'Tripui' dynasty that ruled the region for a long time. Agartala is the capital of Tripura Our college Tripura Institute of paramedical sciences is situated in capital city Agartala. It is the least and best paramedical colleges in our state, as well as North East India. In the college there are approximately 1200 students are present and they are study in different paramedical courses. Among those students we randomly collected 135 students, who were suffering dry eye symptoms. The study was conducted in Tripura Institute of paramedical sciences college campus in Agartala starting from September 2023 to February 2024.

Objectives of the study:

- To assess the prevalence of dry eye syndrome (DES) among college students.
- To identify risk factors associated with DES in this demographic.
- To evaluate the impact of DES on academic performance and quality of life among college students.

Inclusion Criteria:

1. Age Range: Students aged between 18 to 22 years.
2. Enrolment in Paramedical Colleges: Currently enrolled in paramedical programs (medical laboratory technology, radiology, physiotherapy, Optometry etc.).
3. Consent for Participation: Willingness to participate in the survey and clinical evaluations.
4. Ability to Provide Informed Consent: Capable of understanding the study information and providing informed consent.
5. Students those who were suffering dry eye symptoms, included in this study.

Exclusion Criteria:

1. Age Out of Range: Students younger and older than 18 or older than 22 years.
2. Inability to Provide Consent: Individuals unable to understand the study information or provide informed consent.
3. students those who have had no dry eye related symptoms were not included in this study.

Study Design: Cross-Sectional Survey on Dry Eye Syndrome Among College Students. In the study a comprehensive questionnaires sheet was distributed among the paramedical students randomly, addressing DES symptoms, risk factors like, digital device use, environmental exposure; lifestyle habits, and impact on academic and social activities.

Clinical Evaluations: Conduct clinical assessments including tear film evaluation by Schirmer's tear test strip, ocular surface examination by loupe and torch light, visual acuity measurement by Snellen's chart distance and near, refractive errors correction by trial box.

RESULT:

In this study we were getting 135 professional college students, those who were selected by supplying the specific questionnaires related to dry eye. Female students were more effected than male students. Due to more conciseness female students were more participation in the study than male study. In this study, 135 sufferers were present, in which 59(%) were male and 76(%) were female students. [Table – 1]

Table – 1 Gender wise prevalence of dry eye symptoms

Gender	Students	%
Boy	59	43.70%
Girl	76	56.30%
Total	135	100.00%

Table – 2 Gender wise causative factors of Dry eye

Causative factors	Durations	Male	%	Female	%	Total
Uses of Digital devices	Less than 1 hour	07	5.19%	05	3.70%	12 (8.89%)
	Less than 2 hours	11	8.15%	12	8.89%	23 (17.04%)
	More than 2 hours	12	8.89%	14	10.37%	26 (19.26%)
Sunlight induced	Less than 1 hour	03	2.22%	07	5.19%	10 (7.41%)
	Less than 2 hours	09	6.67%	11	8.15%	20 (14.82%)
	More than 2 hours	09	6.67%	18	13.33%	27 (20.00%)
Others		08	5.93%	09	6.67%	17 (12.60%)
Total		59	43.70%	76	56.30%	135 (100.00%)

In the study we found that, students those who were using digital devices more than two hours were facing more ocular problems than less than tow hours. Out of 135 students, 8.89% male and 19.26% female were using digital devices more than 2 hours. And 6.67% male and 13.33% female students were suffering sunlight induced dry eye more than others. [Table – 2]

Table no – 3 Gender wise dry eye symptoms (burning sensation) distribution

Gender	Burning Sensation	Students	%
Boys	Yes	37	27.41%
	No	22	16.30%
Girls	Yes	41	30.37%
	No	35	25.93%
Total		135	100.00%

Out of total 135 sufferers, 27.41% male and 30.37% female were suffering burning sensation symptoms and 16.30% male and 25.93% female had no burning sensation symptoms in related to dry eye. [Table – 3]

Table no – 4 Gender wise dry eye symptoms (irritation) distribution

Gender	Irritation	Students	%
Boys	Yes	29	21.48%
	No	30	22.22%
Girls	Yes	34	25.19%
	No	42	31.11%
Total		135	100.00%

Out of total 135 sufferers, 21.48% male and 25.19% female were suffering irritation symptoms and 22.22% male and 31.11% female had no irritation symptoms in related to dry eye. [Table – 4]

Table no – 5 Gender wise dry eye symptoms (Foreign body sensation) distribution

Gender	Foreign body sensation	Students	%
Boys	Yes	38	28.15%
	No	21	15.56%
Girls	Yes	47	34.81%
	No	29	21.48%
Total		135	100.00%

Out of total 135 sufferers, 28.15% male and 34.81% female were suffering foreign body sensation symptoms and 15.56% male and 21.48% female had no foreign body sensation symptoms in related to dry eye. [Table – 5]

Table no – 6 Gender wise dry eye symptoms (Redness) distribution

Gender	Redness	Students	%
Boys	Yes	43	31.85%
	No	16	11.85%
Girls	Yes	49	36.30%
	No	27	20.00%
Total		135	100.00%

Out of total 135 sufferers, 31.85% male and 36.30% female were suffering redness and 11.85% male and 20.00% female had no redness in related to dry eye. [Table – 6]

Table – 7 Gender wise Schirmer's tear test position

Gender	< 5mm	%	5mm to 10mm	%	> 10mm	%	Total
Boys	09	6.67%	21	15.56%	29	21.48%	59 (43.70%)
Girls	13	9.63%	18	13.33%	45	33.33%	76 (56.30%)
Total	22	16.30%	39	28.89%	74	54.81%	135 (100.00%)

We were applied Schirmer's test for dry eye, in this study total 135 professional college students were suffering from dry eye, where 6.67% students were boys suffered from severe dry eye (less than 5mm), 15.56% students were boys suffered from moderate dry eye (5 -10mm), or 21.48% boys were normal (greater than 10mm). And whereas, 9.63% students were girls suffered from severe dry eye, 13.33% students were girls suffered from moderate dry eye, and lastly 33.33% girls were normal in range. [Table – 7]

Discussion

Discussion may highlight the prevalence of dry eye among professional college students, emphasizing that it is a significant issue affecting a notable portion of the student population. The data might provide insights into the factors contributing to the development of dry eye, such as prolonged screen time or lack of proper eye care practices.

The discussion could delve into the potential consequences of dry eye on the academic performance, well-being, and overall quality of life of these students. The data might reveal the extent to which dry eye symptoms impact their daily activities and productivity.

Furthermore, the discussion might explore existing treatments and preventive measures for dry eye, assessing their effectiveness and relevance to the paramedical college student population. The data might highlight any specific recommendations or interventions that have been found to be beneficial in managing and reducing dry eye symptoms.

Conclusion

The project may summarize the key findings from the data analysis and emphasize the need for attention and action regarding dry eye among professional college students. It may stress the importance of implementing strategies to raise awareness about dry eye, promote eye health practices, and provide appropriate support and resources for affected students.

Common eye diseases, including visual abnormalities, are caused by the interaction of human genes and the increasing of the number of DED patients have increased by the dramatically of the past decades. The increasing of visual tasks, an aging society, sleep deprivation, lack of exercise, increasing in obesity and sedentary lifestyles could also contribute to the increase in DED incidence.

The DED treatment recommendations were based on the modified severity grading. Education and counselling, environmental management, elimination of offending systemic medications, allergy eye drops. If first stage treatments are inadequate; then unpreserved tears, gels, ointments, Nutritional supplements, Secretagogues.

In one sense, DED can be considered lifestyle diseases. It is very important to make sure that, the eyes must be checked often by any optometrists at least once in a month. When using digital screens excessively, the eyes must have a break. Follow the 20-20-20 rule (every 20 minutes, take a 20 second break and focus your eyes on something at least 20 feet away). Eat green leafy vegetables.

Avoid sunlight, for that use sunglasses. Use protective ARC glasses for computer works. Avoid using mobile phones in dark room. Drink sufficient water regularly. The purpose of this paper was a global consensus among optometrists/ ophthalmologists who examine DED patients almost every day.

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