

# Prevalence and risk factors of dry eye: a hospital based study

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## Abstract

**Introduction:** Dry eye is a disorder of the tear film due to tear deficiency or excessive tear evaporation, which causes damage to the interpalpebral ocular surface and is associated with symptoms of ocular discomfort. Dry eye syndrome is also known as keratoconjunctivitis sicca. It is far more prevalent than was previously considered. Reported prevalence ranges from 5.5% to 27.5% (age and sex adjusted). The present study was conducted in department of Ophthalmology, Government Medical College, Nagpur to estimate the prevalence of dry eye in a hospital based population, to assess subjective symptoms of dry eye patients, to evaluate risk factors attributable to dry eye and to evaluate role of investigative modalities in diagnosing dry eye. Eighty two patients above the age of 5 years participated in the study. After detailed history and investigations, the prevalence rate in our study was found to be 16.4 percent. It was found that dry eye is common in older population, females, and in summer season. It is mostly seen in farmers, labourers, those exposed to ultraviolet rays, computer users and contact lens wearers. Dry eye is an under diagnosed disorder. Early screening and effective management can improve the quality of life of patients and decrease the morbidity due to ocular surface disorders.

**Keywords:** Prevalence of dry eye, keratoconjunctivitis sicca.

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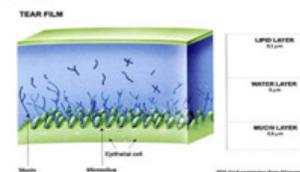
## INTRODUCTION

Dry eye is a disorder of the tear film due to tear deficiency or excessive tear evaporation, which causes damage to the interpalpebral ocular surface and is associated with symptoms of ocular discomfort. Dry eye syndrome is also known as keratoconjunctivitis sicca. It is far more prevalent than was previously considered. Reported prevalence ranges from 5.5% to 27.5% (age and sex adjusted). Study was conducted in department of Ophthalmology, Government Medical College.

## THE TEAR FILM

■ THERE ARE THREE LAYERS :

- A. **LIPID LAYER**
- B. **AQUEOUS LAYER**
- C. **MUCIN LAYER**



## RATIONALE

The present study was carried out to study prevalence of dry eye in a hospital based population, to assess subjective symptoms of dry eye patients, to evaluate risk factors attributable to dry eye and to evaluate role of investigative modalities in diagnosing dry eye.

## MATERIAL AND METHODS

Study was conducted in department of Ophthalmology, Government Medical College and hospital. It was a hospital based randomised prospective study. 82 patients above 5 years of age were included in the study having ocular complaints of irritation, discomfort, foreign body sensation, gritty sensation, burning sensation, blurring of

vision and light sensitivity. Patients having ocular infections, previous ocular surgery, already diagnosed and on treatment of dry eye were excluded from the study. In all patients detailed history was taken. Assessment of eye was done on slit lamp biomicroscope for bulbar conjunctival congestion and vascular dilatation, tear film break up time, punctate epithelial keratopathy, corneal filaments, increased debris in the tear film, conjunctival pleating, superficial punctate keratitis with positive fluorescein staining, mucous discharge and corneal ulcers in severe cases. An interblink interval was carefully calculated after diverting patient's attention elsewhere by discussion. Tests done were Schirmer's test 1: to measure basal secretion. Schirmer's test 2: to measure reflex secretion, Rose bengal staining, Fluorescein staining, Tear film break up time (tfbut) Patients having any two of the above tests positive with presence of chronic symptoms were diagnosed as dry eye patients.

**OBSERVATION**

The following observations were found in our study. In 82 patients of dry eye the prevalence rate was found to be 16.4%. Out of 82 patients, 36 were men and 46 were women Symptoms of dry eye were found in 41 patients in summer, 9 patients in rainy and in 32 patients in rainy season.

**Table 1: Distribution of Pts according to occupation**

Occupation	No. of Patients
Farmeres/ Labourers	23(20.04%)
Office/ Shopkeepers	11 (13.41%)
Housewife/Students	11 (13.41%)
Computer Users	10 (12.19%)
Factory Worekers	8 (09.75%)
Other	19 (23.17%)
<b>Total</b>	<b>82</b>

**Table 2: Distribution of Pts according to disease**

Disease	No. of Patients
S Jогren' Syndrome	3 (03.65%)
Non S Jогren' Syndrome	13 (15.85%)
Meibominal Gland dysfunction	16 (19.51%)
Xerophthalmia	7 (08.54%)
Steven Johnson Syndrome	3 (03.65%)
Computer Vision Syndrome	10 (12.20%)
Contact Lens related	5 (06.10%)
Environmental	10 (12.20%)
Drug induced	5 (06.10%)
Thyroid diseases	2 (02.44%)
Others	8 (09.76%)
<b>Total</b>	<b>82</b>

Statistical analysis was done using - ' t ' test for quantitative data and Chi square test for qualitative data. Data was expressed as range, mean and standard deviation.

**Table 3: Comparison between Observations**

Criteria	Present Study	Other Study	Authors
Age	>60 years	>50 years	Sahai anshu, Malik Pankaj (IJO)
Gender	Common in females	Common in females	Khurana AK, Choudhary R Ahluwalia BK, Gupta S (AIOS)
Seasonal Variation	Common in Summer	Common in Summer	Khurana AK, Choudhary R Ahluwalia BK, Gupta S (AIOS)
Population	Common in Rural	Common in Rural	Khurana AK, Choudhari R, Ahluwalia BK
Most Common Symptom	Irritation	Irritation	Sahai Anshu Nicholas KK

Diseases	Meibomian gland dysfunction (19.51%)	Meibomian gland dysfunction	Shimazaki J, Sakata M, Tsubota K.(arch ophth)
Computer users and contact lens wearers	12.20%	14%	Sheedy je j am optom assoc), Patel S, henderson R, bradley. J.J nicholas, L.sinnot. Gilbard , gray kl,rossi sr.(ajo)

SCHIRMER'S TEST RESULT VALUES IN	PRESENT STUDY	OTHER STUDY	AUTHORS
MEIBOMIAN GLAND DISEASE	MEAN 15.18mm	Almost the same	PLUGFELDER SC
SJOGREN'S SYNDROME	MEAN 3.6mm	MEAN 3.5mm	REDDY M(IJO)
TFBUT IN DRY EYE	RANGE 2-13 sec	Result matches	EIKI GOTO,PASCHIDES,NICHOLAS KK
MEAN INTER BLINK INTERVAL IN DRY EYE PTS	MEAN 6.62 sec		
4.7+/-0.7 sec	2.5+/-0.6 sec	1-2 sec	ROBERT MONTES MICO

## CONCLUSIONS

The prevalence rate of dry eye in our study was 16.4 percent; the most common symptom being irritation of eyes. Dry eye is common in older population, in females and in summer season. It is mostly seen in farmers,, labourers, persons exposed to UV rays, computer users and contact lens wearers Simple tests like Schirmers test, Rose Bengal stain ,fluorescein stain and Tear film break up time can easily diagnose the condition. It is an under-diagnosed disorder. Early screening and effective management can improve quality of life of patients and decrease the morbidity due to ocular surface disorders.

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