

# A study of assess the prevalence of dry eye and its associated risk factors in a tertiary care hospital

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## Abstract

**Introduction:** Dry eye is a major tear deficiency disorder which affects millions of people worldwide. Dry eye refers to disorders of the tear film due to reduced tear production and/or excessive tear evaporation associated with symptoms of ocular discomfort. **Material and Methods:** This was a descriptive, cross sectional study carried out at Ophthalmology out-patient department (OPD) of G.C.R.G Institute of medical sciences BKT Lucknow U.P. from December 2016 to March 2018. **Results:** In our study, among all the associated risk factors majority of the patients 58 (58%) had dry eyes due to other causes which includes pterygium, conjunctivitis, blepharitis, vitamin A deficiency and senile. 17 (17%) patients were found with allergy & keratitis was found in 12(12%) patients. **Conclusion:** Proper counseling of the patients regarding the chronic nature disease with long term treatment and preventive measures are necessary to relieve ocular discomfort and ensure patient satisfaction with a better quality of life.

**Keywords:** Dry eye, Risk factors, Visual acuity, Refraction and Tear film test

## Introduction

Dry eye is a major tear deficiency disorder that affects millions of people worldwide [1]. Dry eye refers to disorders of the tear film due to reduced tear production and/or excessive tear evaporation associated with symptoms of ocular discomfort [2].

Patients with dry eye often complain of pain, heaviness, foreign body sensation, redness, photophobia and reflex watering due to corneal irritation. Because the tear film in dry eye patients is unstable and incapable of maintaining the protective qualities that are necessary for its structure and function, patients experience the symptoms of discomfort associated with dry eye, which are burning, stinging, grittiness, foreign body sensation, tearing, ocular fatigue, and dryness. Patients may complain of symptoms of dry eye in the presence or absence of signs of the disease [3].

The prevalence of Dry Eye Disease (DED) is greatly influenced by geographic location, climatic conditions, and lifestyle of the people and ranges from 5% to 35% [4-6]. Very few studies have described the epidemiology of DED from the Indian subcontinent [7-9].

Various risk factors for dry eye alluded to in literature include air pollution, cigarette smoking, low humidity, high temperature, sunlight exposure and drugs [10].

The objective of our study is to find out the prevalence of dry eye disease and to study the various factors associated with the dry eye disease in patients attending ophthalmology out-patient department in tertiary care hospital.

## Material and Method

This was a descriptive, cross sectional study carried out at Ophthalmology out-patient department (OPD) of G.C.R.G Institute of medical sciences BKT Lucknow U.P. from December 2016 to March 2018. Non-Probability purposive sampling was used for selection of patients. The sample size was calculated from the formula  $4Pq/l^2$  by taking 5% margin of error, 95% Confidence interval. The required sample size was found to be 100.

**Inclusion criteria:** Patients attending ophthalmology OPD with age above 18 years with presenting complaint consistent with dry eyes (ocular discomfort, burning sensation, redness, itching, dryness etc) were included in this study.

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**Exclusion criteria:** Patients taking any ocular or systemic medications, or had undergone intra or extra ocular surgery or with an active ocular infection in the previous 6 months were excluded from the study and patient who did not gave consent were excluded.

**Procedure-** After taking consent from all the subjects included in the study, a detailed history about demographic, medical, lifestyle data and symptoms of dry eye such as dryness, grittiness, burning, stickiness,

heaviness, itching and watering was taken. All the patients were checked by Auto-refractometer, Visual acuity, Refraction, and Tear film test by slit lamp. Local anesthesia, Fluorescein strips and Schirmer's test.

**Data analysis-** The data was analyzed through the software Microsoft office excel 2007. The entire continuous variables were presented as Mean  $\pm$  SD. All categorical variables were presented as frequency and percentages.

## Results

In our study, a total of 100 patients were included in the study, of which 56 (56.0%) were males and 44 (44.0%) were females. The most common age group affected was 21–30 years followed by 31–40 years in both the sexes. Out of total 56 males 12 (12%) and out of total 44 females 13 (13%) had dry eye disease. Age wise distribution of dry eye disease patients is shown in **Table No.1**.

**Table No.-1: Distribution of dry eye disease patients**

Age in years	Males n (%)	DED n (%)	Females n (%)	DED n (%)	Total n (%)	DED n (%)
<21	04	01(01)	02	01(01)	06	02(02)
21-30	18	04(04)	15	04(04)	33	08(08)
31-40	15	03(03)	11	03(03)	26	06(06)
41-50	12	02(02)	08	02(02)	20	04(04)
51-60	05	01(01)	09	02(02)	14	03(03)
Above 60	03	01(01)	01	01(01)	04	02(02)
<b>Total</b>	<b>56</b>	<b>12</b>	<b>44</b>	<b>13</b>	<b>100</b>	<b>25</b>

In our study, majority of the patients 25 (25%) had mixed presenting complaint i.e. a combination of two or more symptoms which was followed by watering in eyes and itching in eyes. Distribution of dry eye disease patients according to the presenting complaints is shown in **Table No.2**.

**Table No.-2: Distribution of patients of dry eye disease according to presenting complaints**

Presenting Complaints	n (%)
Burning Sensation	12
Itching	15
Redness	09
Photophobia	08
Watering	24
Grittiness	06
Foreign body sensation	11
Combination of 2 or more of above complaints	25
<b>Total</b>	<b>100</b>

In our study, among all the associated risk factors majority of the patients 58 (58%) had dry eyes due to other causes which includes pterygium, conjunctivitis, blepharitis, vitamin A deficiency and senile. 17 (17%) patients were found with allergy, keratitis was seen in 12(12%) patients. Distribution of patients of dry eye disease according to risk factors is shown in **Table No. 3**.

**Table No.-3: Distribution of patients of dry eye disease according to risk factors**

Risk factor for Dry Eye Disease	n (%)
Keratitis	12
Allergy	17
Contact lens	01
Computer or Mobile use	09
Drugs/Medications	03
Others (pterygium, Conjunctivitis, Blepharitis, Vit-A def., Senile)	58
<b>Total</b>	<b>100</b>

## Discussion

In our study, a total of 100 patients were included in the study, of which 56 (56.0%) were male and 44 (44.0%) were female. The most common age group affected was 21–30 years followed by 31–40 years in both the sexes. Out of total 100 patients 25 (25%) patients had dry eye disease which include 56 males 12 (12%) and 44 females 13 (13%). Proportion of DED was seen more common in females.

In a study conducted by Anuj Kumar Pathak et al [11] in Jharkhand in 2017, the proportion of dry eye patients diagnosed in their study was 39.3% which was lower than the study done at West Bengal [12] where it was around 54% and higher than the study conducted by Bhutia et al [13] in Sikkim where it was around 12.7%. Thus the proportion of dry eyes varies in different geographical locality.

In our study, majority of the patients 25 (25%) had mixed presenting complaint i.e. a combination of two or more symptoms which was followed by watering in eyes and itching in eyes. In a similar type of study conducted by Shah S [14] in 2015, out of 400 patients who had dry eye, eye watering (41%) and itching (19.8%) were the most common symptoms

In our study, among all the associated risk factors majority of the patients 58 (58%) had dry eyes due to other causes which includes pterygium, conjunctivitis, blepharitis, vitamin A deficiency and senile.

17 (17%) patients were found with allergy, keratitis was seen in 12(12%) patients. In a similar type of study conducted by Shaheerah G [15], 63% were having the symptoms of dry eyes due other causes which includes pterygium, conjunctivitis, blepharitis 22% of the patients were included in allergy, some patients were having keratitis, few were having dry eye due to use of several drugs.

## Conclusion

There are many contributing factors for dry eye which includes age, female gender, medications and contact lens use. This study reflects a major burden of DED among the routine outpatients in tertiary care institute and this was reflecting an adverse impact on the vision related quality of life on patients having various dry eye symptoms. Proper counseling of the patients regarding the chronic nature disease with long term treatment and preventive measures are required to relieve ocular discomfort and ensure patient satisfaction with a better quality of life.

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## Original Research Article

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