

# Prevalence of Dry Eye in Patients Attending Ophthalmology OPD in a Tertiary Care Hospital in Kolar

**Type:** Research Article

**Received:** February 15, 2026

**Published:** May 30, 2026

**Citation:**

Sharadhi SP, et al. "Prevalence of Dry Eye in Patients Attending Ophthalmology OPD in a Tertiary Care Hospital in Kolar". PriMera Scientific Surgical Research and Practice 7.6 (2026): 27-32.

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## Abstract

**Objectives:** To access the Prevalence of dry eye in patients attending ophthalmology opd in a tertiary care hospital in Kolar-A speed survey

**Method:** Cross-sectional observational study done at tertiary care centre, history comprehensive eye examination, including distant visual acuity and near vision was done.

Paper-based SPEED questionnaire was given to the participants. The participants response for the presence or absence, the frequency, and the severity of four dry eye-related symptoms at the time of administration of the questionnaire, 72 hours and 3 months prior to administration of questionnaire. Each symptom was graded, The scoring was done according to the standards indicated in literature.

**Results:** Among 161 participants, 38% were identified as males, while 62% were females. The average age of the patients enrolled in the study was determined to be 58 years. Of the total 161 patients, 18% exhibited normal dry eye symptoms, while 48% moderate dry eye symptoms & 34% had severe symptoms.

**Conclusion:** SPEED questionnaire for dry eye, is simple instrument for quantifying the severity of the most common dry eye symptoms experienced by patients.

**Keywords:** Dry eye; SPEED questionnaire

## Introduction

Ocular surface disorder -Dry eye occurs when there instability in tear film equilibrium Leading to inflammation & damage to ocular surface inflammation [1]. Between 5% and 50% of people worldwide have dry eye; in India, the frequency is estimated to be between 15.4% and 45.4% [1]. Older age, feminine gender, Asian ethnicity, people wearing contact lenses, and hormonal imbalances are risk factors for dry eye. People who live in rural areas, work outside, are more likely to get dry eyes, as they spend a lot of time in the wind and sun.

The patient exhibits as diminution of vision, ocular pain, and a general decline in their quality of life. Clinically, DED symptoms are the main cause of medical attention seeking for patients. Validated questionnaires can be used to track chronic complaints.

The Standard Patient Evaluation of Eye Dryness (SPEED) questionnaire has been shown in previous research to be a standardized, valid tool for determining the frequency and severity of dry eye symptoms. Other questionnaires for dry eye are "Ocular Surface Disease Index (OSDI), Canadian Dry Eye Epidemiology Study (CANDEES), Dry Eye Questionnaire (DEQ) Contact Lens Dry Eye Questionnaire (CLDEQ), Impact of Dry Eye in Everyday Life (IDEEL)" [2].

The SPEED questionnaire was created by Korb and Blackie to help monitor the rapid escalation of dry eye symptoms over time. This questionnaire evaluates the frequency and severity of symptoms using eight items that result in a score ranging from 0 to 28. The symptoms assessed include "dryness, grittiness, scratchiness, irritation, burning, watering, soreness, and eye fatigue".

The questionnaire also evaluates these symptoms were unpleasant, uncomfortable, problematic, intolerable, or problematic. For three months, the questionnaire also tracked changes in symptoms and diurnal patterns. The OSDI questionnaire (gold standard) was used to compare the questionnaire's ability to separate patients according to their symptoms in order to assess its validity. The resulting sensitivity and specificity were 0.90 and 0.80 respectively [3].

The SPEED score has a strong correlation with both clinical measurements of Meibomian gland function and ocular surface staining, according to research by Ngo et al.

In contrast to the Ocular Surface Disease Index (OSDI) questionnaire, Asiedu et al. found that SPEED performed better in differentiating between asymptomatic and symptomatic participants in a nonclinical sample cross-sectional investigation [2].

The SPEED questionnaire is one of the most widely used known instruments for measuring dry eye because it can be administered quickly, which is useful in clinical settings, and it is a repeatable tool for determining the severity of the most prevalent dry eye symptoms that patients experience [2].

Kolar being district with agriculture, dairy farming as major source of employment, Patients here are more prone to develop dry eye, this questionnaire has helped in screening large population, quantifying the dry eye disease and treating it appropriately.

## **Materials and Methods**

### ***This Materials & Methods***

***Study Design:*** A Cross sectional observational study.

***Source of Data:*** out patients who visit Ophthalmology OPD at R. L Jalappa.

Hospital, Kolar attached to Sri Devaraj Urs Medical College, Tamaka, Kolar.

***Study Duration:*** 6 months.

***Inclusion Criteria:*** All Patients aged 18-60 years of age who are attending ophthalmology opd in a tertiary care hospital.

### ***Exclusion Criteria***

1. Patients who underwent ocular surgeries.
2. Participants with predisposing dry eye risk factors such as Sjogren's syndrome, history of any ocular surgery,
3. lid abnormality, facial nerve palsy,
4. contact lens wear.

## Method of Data Collection

All consecutive patients attending ophthalmology OPD aged 18-40, were considered in the study. After obtaining an informed consent, demographic details are noted. followed by a comprehensive eye examination which include distant visual acuity by Snellen's chart and near vision by Jaeger's chart, Paper-based SPEED questionnaire administration was done for the participants. The participants response for the presence or absence, the frequency, and the severity of four dry eye-related symptoms namely dryness, grittiness or scratchiness, soreness or irritation, burning or watering, eye fatigue at the time of administration of the questionnaire, 72 hours and 3 months prior to administration of questionnaire. Each symptom was graded frequency (scale 0 to 3) and severity (scale 0 to 4) scores with 0 indicating infrequent or less severe symptom and higher scores indicating more frequent or severe symptoms. Composite scores were obtained by summing up these scores for a total of 28. The subject was categorized as normal, moderate or severe dry eye symptoms if the composite SPEED score was 0-6, 7-15, or 16-28, respectively.

The scoring was done using the guidelines provided in the literature. Data was be coded and entered into excel sheet. All quantitative measures was be presented by mean and Standard Deviation.

Chi-square was used as test of significance. Continuous data was be represented as mean and standard deviation. Independent t test will be used as test of significance to identify the mean difference. P value <0.05 will be considered as statistically significant.

## Results

Among 161 participants, 38% were identified as males, while 62% were females. The average age of the patients enrolled in the study was determined to be 58 years. Of the total 161patients, 18% exhibited normal dry eye symptoms, while 48% moderate dry eye symptoms & 34% had severe symptoms according to SPEED questionnaire. Prevalence of dry eye from our study is 82%.

**SPEED™ QUESTIONNAIRE**

Name: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Sex: M F (Circle) DOB: \_\_\_\_/\_\_\_\_/\_\_\_\_

*For the Standardized Patient Evaluation of Eye Dryness (SPEED) Questionnaire, please answer the following questions by checking the box that best represents your answer. Select only one answer per question.*

**1. Report the type of SYMPTOMS you experience and when they occur:**

Symptoms	At this visit		Within past 72 hours		Within past 3 months	
	Yes	No	Yes	No	Yes	No
Dryness, Grittiness or Scratchiness						
Soreness or Irritation						
Burning or Watering						
Eye Fatigue						

**2. Report the FREQUENCY of your symptoms using the rating list below:**

Symptoms	0	1	2	3
Dryness, Grittiness or Scratchiness				
Soreness or Irritation				
Burning or Watering				
Eye Fatigue				

0 = Never    1 = Sometimes    2 = Often    3 = Constant

**3. Report the SEVERITY of your symptoms using the rating list below:**

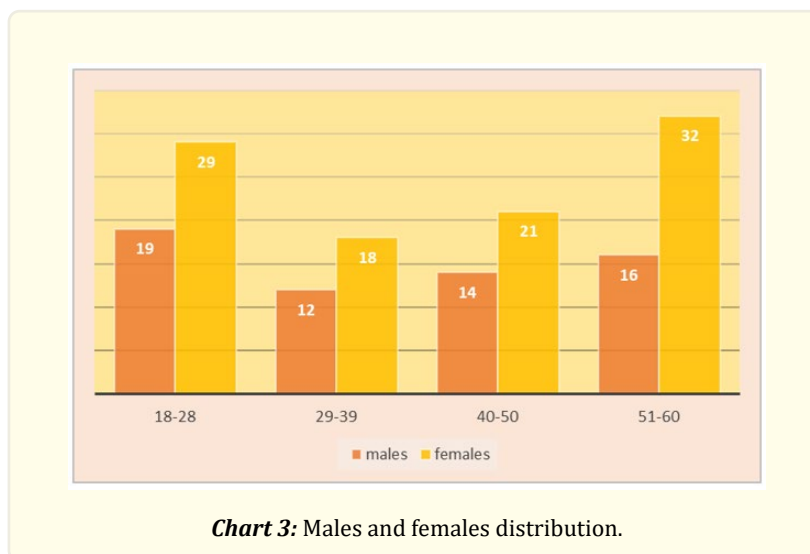
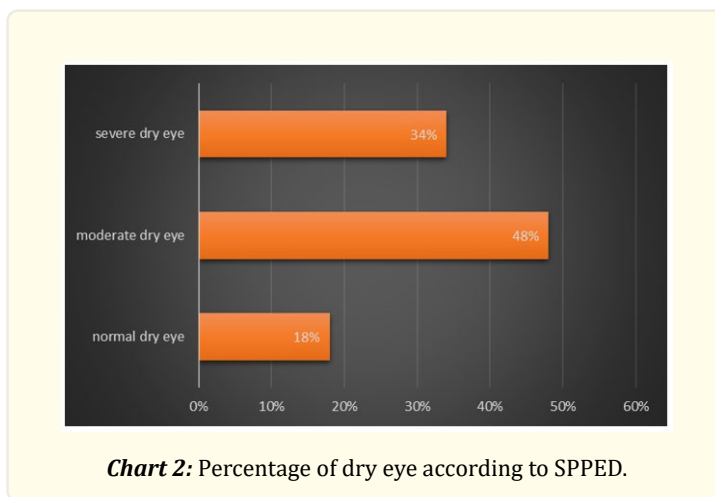
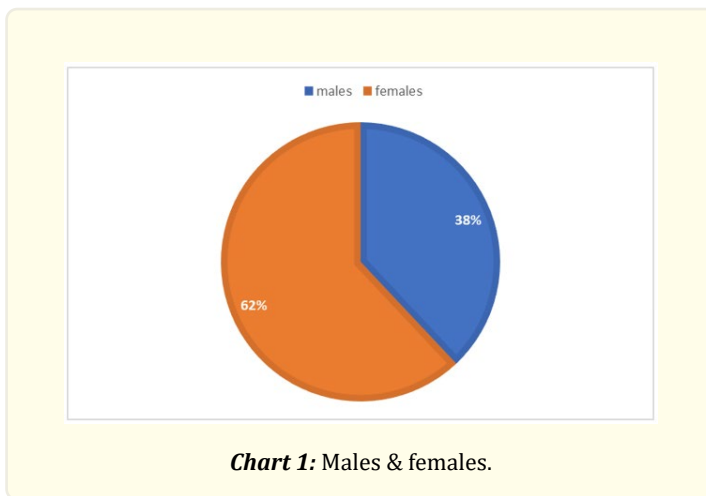
Symptoms	0	1	2	3	4
Dryness, Grittiness or Scratchiness					
Soreness or Irritation					
Burning or Watering					
Eye Fatigue					

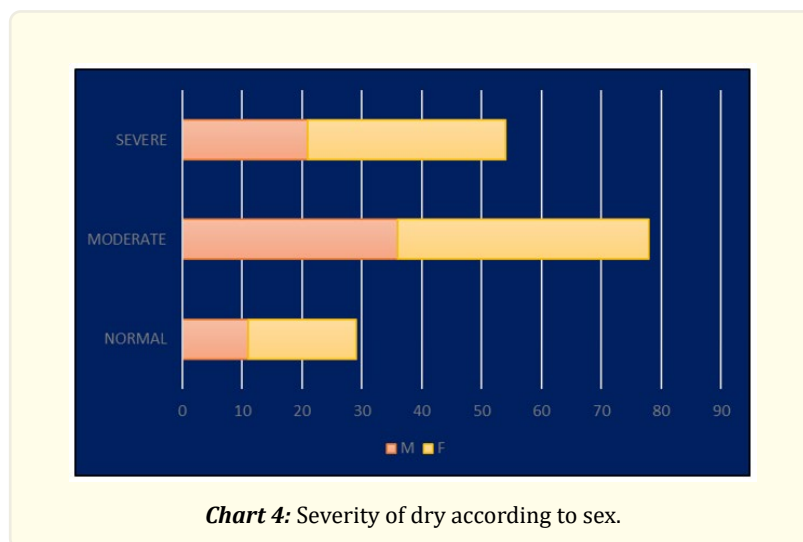
0 = No Problems  
 1 = Tolerable - not perfect, but not uncomfortable  
 2 = Uncomfortable - irritating, but does not interfere with my day  
 3 = Bothersome - irritating and interferes with my day  
 4 = Intolerable - unable to perform my daily tasks

**4. Do you use eye drops for lubrication?**     YES     NO    If yes, how often? \_\_\_\_\_

Cornea, 2013; 38(9):1204-10  
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 13-ADW-120A

For office use only  
 Total SPEED score (Frequency + Severity) = \_\_\_\_/28





**Chart 4:** Severity of dry according to sex.

Age Group	Normal	Moderate	Severe
18-28	8	19	3
29-39	4	14	6
40-50	8	17	16
51-60	9	28	29

**Table 1:** Age group and severity of dry eye.

## Discussion

Clinical investigations on the prevalence of dry eye in rural areas are scarce. It was discovered that many subjects in dry eye research had symptoms-based dry eye. Women had dry eyes more often than men did. This study showed increase prevalence of dry eye in age group between 51-60 years which was also observed in studies done by Münch, Kathrin MD\* et al [6].

In our study dry eye prevalence was 82% which relates to dry hot climate and increased outdoor activity of people in Kolar. Study done by Sundip Shenoy on prevalence of dry eye in a rural place of Karnataka observed 85.7% of dry eye disease who also blamed climate for dry eye disease [11].

Sahai's 2005 study in Jaipur discovered a frequency of 18.4%. Gupta's 2008 Leh study reported a 54% incidence [8]. Jie's 2009 Beijing eye study reported a 21% prevalence [9]. A 2009 Bukhari study on Saudi Arabia discovered a 93.2% frequency [10]. Gupta (2010) showed a 29.3% frequency in Delhi are some other studies done in Asia to understand the prevalence.

Dry eye prevalence increased progressively with age which is consistent with the findings in other dry eye studies.

Study done by Anantharaman et al, Münch, Kathrin MD et al & Osaie EA, Ablordeppey RK et al reported DED to be more prevalent in women, which was also observed in my study where 62% had dry eye, which relates to estrogen deficiency leading to dry eye [6, 7, 11].

In our study 82% had moderate to severe dry eye, which adds on to the finding of Osaie EA, Ablordeppey RK, [3] et al who concluded Rural participants showed greater SPEED scores & have worse dry eye and meibomian gland health status than those from the urban population.

Dry eye prevalence in our study can also be linked to high temperate climates of Kolar which is proved by Osae EA et al [3] Temperature were positively associated with DED ( $p < 0.05$ ). SPEED detected many dry eye disease in a short duration of time & quantitatively evaluated pts for past 3 months.

## Conclusion

The most prevalent cause of visual impairment and decreased quality of life is dry eye disease, which typically manifests as nebulous symptoms that require a number of intrusive testing and a lengthy diagnosis process. SPEED is a quick and reliable way to diagnose dry eye that takes into account symptoms from the previous three months in addition to those present on test day. Prevalence of dry eye in Kolar is higher which accounted 82% of screened population, reason being hot climate, dusty environment and most of the population predominantly work outdoor in sunny conditions.

Many studies have used different questioner for detecting DED, but SPEED questioner has good efficacy in diagnosing DED in shorter duration of time, which can be helpful in mass screening.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no apparent conflicts of interest involved in this matter.

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