

Original Research Article

Spectrum of ocular manifestations among bus drivers and conductors

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ABSTRACT

Background: Bus drivers and conductors rely heavily on good vision for safe and efficient transport. Prolonged exposure to environmental stress, irregular schedules, and limited access to eye care increase their risk of developing ocular issues. This study aims to assess the prevalence and types of ocular manifestations in this group to highlight the need for regular eye examinations and timely treatment.

Methods: Study was carried out in Gadag city among 75 bus drivers and conductors. Basic personal details and history regarding ophthalmic complaints were taken. Complete ocular examination was carried out. Patients with refractive error were given spectacle correction. Few who needed medical management were treated accordingly.

Results: Majority of them were males (81.3%). 14.6% had dry eye symptoms. 46.6% of them were presbyopic. Surgical management was required in 22.6% patients (cataract and pterygium). Allergic eye disease was seen in 5.3% patients. Systemic illness like diabetes and hypertension was seen in 6 patients.

Conclusions: Regular eye examination and intervention whenever needed promotes good eye health of the bus drivers and conductors and even helps in efficient public transport.

Keywords: Bus drivers and conductors, Eye health, Presbyopic, Pterygium

INTRODUCTION

Public transport is the vital force of civic headquarters, connecting people to their destinations.¹ Bus drivers, by virtue of their profession, face unique and relentless visual challenges. Their responsibilities extend beyond simply steering the vehicle from one point to another. They must actively navigate through dense traffic, assess road conditions, monitor pedestrians, cyclists, and other vehicles, and adapt to ever-shifting environmental factors, such as weather or construction zones. It involves sustained attention, constant visual scanning, and rapid responses.²

Given the high demand for constant attention, the bus driver's visual capabilities become central to their performance. The ability to make split-second decisions

can significantly impact how well a driver manages potential risks, such as abrupt traffic changes, erratic behavior from other road users, or unexpected obstacles. For this reason, clear vision is not merely a matter of convenience; it is a matter of safety and efficiency.³

It is stable that clear vision and visual comfort are prime to driving security. Vision-related symptoms such as eye strain, blurred vision, and dry eyes can reduce a driver's ability to make speedy and proper decisions, react to unanticipated road conditions, and assure the security of passengers and fellow road users.

To maintain safety standards, it is crucial for bus drivers to ensure that their vision is regularly checked and corrected if necessary. Proper eyewear, such as corrective lenses or anti-glare glasses, along with a comfortable and

well-lit driving environment, can help reduce these vision-related symptoms. The importance of regular treatment should be frequently emphasized as poor compliance has often been reported in patients with long working hours.⁴

Objective of this study was to study various ocular manifestations in bus drivers/conductors in Gadag district. Ultimately, the safety of passengers and the general public is deeply tied to a bus driver's ability to see clearly and comfortably. Ensuring that drivers have the visual support they need is a key factor in preventing accidents and maintaining a safe public transport system for everyone involved.⁵

METHODS

A cross sectional, observational study was carried out in Gadag in the year 2024. A convenient sampling method was employed, selecting 75 bus drivers and conductors from Gadag city who were available and willing to participate. Inclusion criteria was bus drivers and conductors of any age and gender who belonged to Gadag district. Bus drivers and conductors from other district were excluded from study. Informed consent was obtained from the participants. Basic personal details like Name, age, sex, years of driving experience were taken. History regarding ophthalmic complaints were taken. History of diabetes, hypertension or any chronic illness was taken.

Visual assessment was done by checking their visual acuity by the use of Snellen's chart. Monocular visual acuity was determined with current spectacle prescription if any. Pinhole acuity was assessed in eyes with presenting visual acuity <20/20 (logarithm of the minimum angle of resolution [logMAR]). Streak retinoscopy and subjective refraction were performed in all subjects. The best-corrected visual acuity was ascertained and recorded. Anterior segment examination was done with pen torch. A direct ophthalmoscope was employed to examine the posterior segment.

Color vision was tested using Ishihara pseudo-chromatic color plate test (24th edition). The test was conducted in a room with optimum natural daylight hours as recommended by Ishihara guidelines. The distance between the subjects being examined and the chart was 75 cm.⁶ The test was performed under binocular viewing conditions. The time taken in each plate test was not more than a 3-s delay.

Patients with refractive error were given spectacle correction. Few who needed medical management were treated accordingly. Patients who had cataract, Grade 2 pterygium were advised to undergo surgery.

The data was analysed for demographic details, vision, refraction, presence of systemic and ocular diseases with

vision-threatening potential, presence of ocular conditions responsible for visual loss and the treatment administered.

RESULTS

Majority of the patients belonged to the age group 28-58 years. Out of 75, 61 were male, 14 were female (Figure 1).

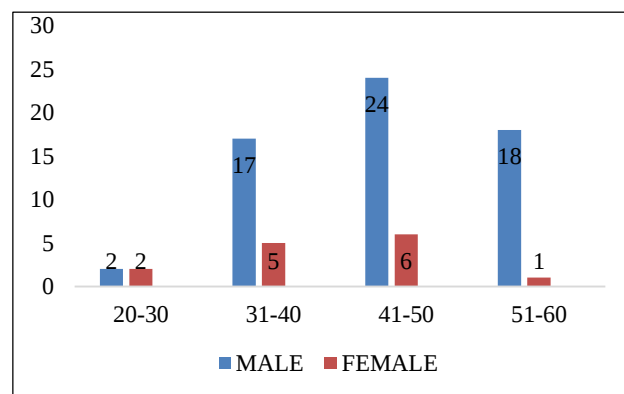


Figure 1: Age and sex distribution.

69% drivers were recommended for spectacles by their doctors which shows refractive errors are common in drivers but only 10% drivers using spectacles during driving. By visual acuity test it was found that among 69% drivers who were suffering from refractive errors 9.3% drivers were suffering from Myopia, 60% drivers were suffering from presbyopia (Figure 2). Color blindness was not found among these drivers.

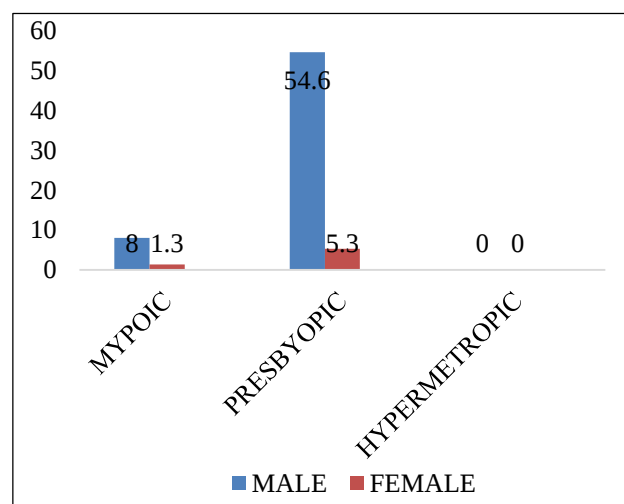


Figure 2: Frequency of refractive error and its type.

Majority of the drivers were with experience of 16-25 years (Figure 3).

Diabetes was seen in 3 males and 1 female. Hypertensive was seen in 2 male drivers (Figure 4).

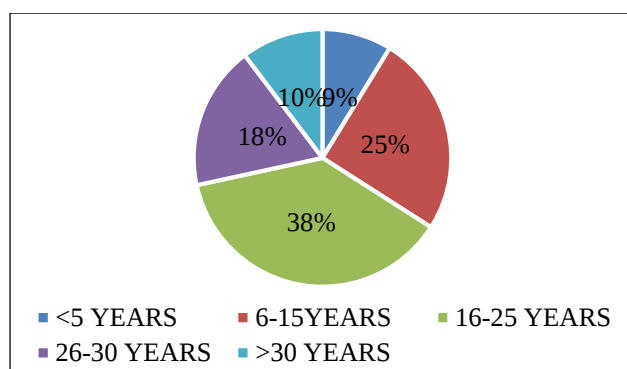


Figure 3: Years of driving experience.

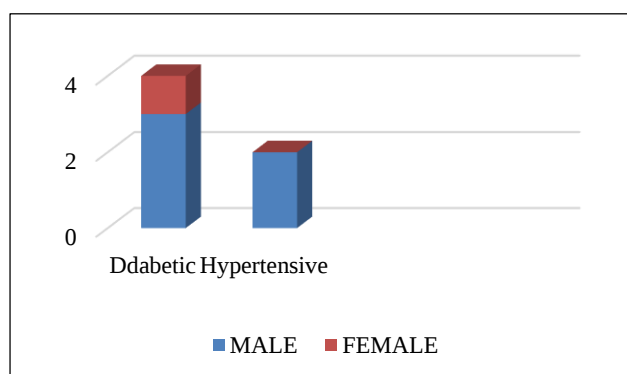


Figure 4: Diabetic and hypertensive status.

Among 75 drivers, 22.6 % (n=17) had various ocular manifestations. Majority was cataract (52.9%), allergic eye disease (23.5%), pterygium (11.7%), least common being squint (0.05%) (Figure 5).

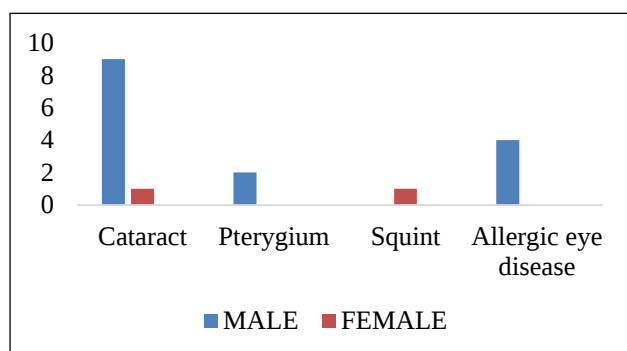


Figure 5: Various ocular manifestations.

DISCUSSION

This study is an effort driven by the dual target of improving the benefit of these professionals and confirming the security of those who depend on public transport.⁷ The study recognizes the critical role that good visual health plays in the performance of bus drivers and conductors, and how it directly impacts road safety. Thus, the research takes a holistic approach by addressing both the ocular health of these professionals ensuring they can perform their duties efficiently without risk of visual-

related accidents or fatigue and the safety of the passengers they transport.⁸

Study focuses on the unique visual demands, such as driving for extended periods, reading bus schedules or street signs, and responding to different lighting conditions.⁹ These challenges can put strain on their eyes, especially if they have underlying vision issues that haven't been addressed. The study delves into the ocular challenges and offer solutions, such as corrective glasses or medical treatments, to help mitigate these problems.

The research combines quantitative assessments of visual acuity, refractive errors, and vision-related symptoms with qualitative insights from bus drivers.

According to Kohli et al, total of 3042 drivers with a mean age of 47.0 ± 5.7 years (range, 29 to 61 years) were evaluated in the year 2019.¹⁰ The most common ocular morbidity was refractive error (45.0%). While 460 drivers had a myopia, 917 had a hypermetropia. Visual function-threatening systemic diseases were present in 25.0% drivers, out of which diabetes mellitus (18.7%) was the most common pathology. The most common ocular problem was refractive error (45.0%).

While in our study mean age of 44.12 ± 5.7 years (range, 28 to 58 years) were evaluated in the year 2024. Ocular manifestations seen were cataract, and pterygium (22.6%), presbyopic (46.6%), and allergic eye disease was seen in 5.3%. Diabetes was seen in 5.3%, and hypertensive in 2.6%. Cataract patients underwent lens extraction with insertion of PCIOL and BCVA was restored. Pterygium patients underwent surgical excision with conjunctival autograft.

According to Mumtaz et al, majority of the drivers were with experience of less than 5 years (49%).¹¹ While in our study maximum years of experience was 16-25 years (38%).

According to Sarkar et al, blurred vision emerges as the most reported symptom, affecting 16.42% of individuals, likely due to its association with common conditions such as refractive errors, prolonged screen use, or systemic health issues like diabetes.¹² Tearing (12.17%), represents the second most prevalent symptom and may result from irritation, allergies, or dry eye syndrome, reflecting the complexity of tear production issues. Redness 11.75%, headaches (8.42%), eye pain (8.33%), itching 7.92% foreign body (fb) sensation 7.25% are other symptoms.

While in our study most reported symptom was blurred vision (34.6%) of individuals. Second being redness and itching (23.5%) and least is foreign body (FB) sensation (11.7%) among all symptoms.

The study was limited by a small sample size and reliance on a single geographic location, which may not reflect the broader population of bus drivers.

CONCLUSION

Several bus drivers suffer from vision-threatening systemic and ocular diseases. Some of them require surgical intervention to retain fitness. A complete ocular and systemic evaluation of diseases with vision-threatening potential should be performed at the time of renewal of the driving license. Regular eye examination and intervention whenever needed promotes good eye health of the bus drivers and conductors and even helps in efficient public transport. The drivers should be educated about the conditions which can affect their driving skills and must be encouraged to seek medical help at an early stage.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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