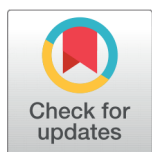


RESEARCH ARTICLE



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* **Corresponding author.**

drchaitramc@gmail.com

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Evaluation of visual acuity in drivers as studied in Kolar district

M S Padmajothi^{1,2}, M C Chaitra^{3*}, Sri Archana Shetty⁴

1 Professor and HOD, Department of Ophthalmology, Basaveshwara Medical College and Hospital, Chitradurga, 577502, Karnataka, India

2 Former Professor, Department of Ophthalmology, Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India

3 Assistant Professor, Department of Ophthalmology, Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India

4 Post Graduate, Department of Ophthalmology, Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India

Abstract

To assess the visual acuity, identify the cause for reduced vision & to advice patients regarding correction of vision in drivers for safe driving. Analysis of a cross-sectional study of people having a history of driving — two-wheeler, four wheeler or autorickshaw was done. Best corrected visual acuity (BCVA) less than 6/6 in the better eye were selected for the study through screening camps for KSRTC bus drivers, Autorickshaw drivers and patients coming to the OPD of R L Jalappa Hospital & Research Center in Kolar district, having a history of driving two-wheeler, four wheeler & autorickshaw were included. Patients who have stopped driving due to the reduced vision were excluded from the study. After taking an informed consent, patients underwent a comprehensive ophthalmic examination. Those patients who were identified as having decreased vision were advised regarding the necessary treatment. Out of 706 patients, 87.99 % of drivers in this study were males and majority belonged to the age group between 20-30 years. 29.17 % of patients did not have driving license though they were driving either 2 or four wheeler vehicles or Autorickshaws. 41% of patients did not have any eye checkup prior to our examination and after our examination was done 58.9% of patients were advised spectacle correction. This highlights the need for intensified health education to encourage drivers who experience these defects to seek prompt medical help and advice. The prevalence of refractive errors among the study population also indicates the need to enforce the law on comprehensive eye examination by appropriate professionals, as enshrined in the law, rather than just measuring visual acuity prior to acquiring or renewing drivers' licenses, as is currently the case.

Keywords: Best corrected visual acuity; drivers; reduced vision; RTA

Introduction

Good vision is a fundamental component of safe driving, being one of the most important sensory factors for this activity, accounting for about 95% of all sensory requirements.⁽¹⁾ For this reason, drivers with good vision have an advantage over those with poor vision as far as Road Traffic Accidents (RTAs) are concerned. RTAs are a major health problem worldwide,⁽²⁾ and a leading cause of death from trauma,⁽³⁻⁶⁾ with an estimated annual death of 1.2 million and up to 50 million injuries worldwide.⁽⁷⁾

Commercial vehicles are the major source of motorized transport in many low-income countries.⁽¹⁾ In the absence of good public transport infrastructure such as railways, most people rely on them for commuting, with the role of commercial driver being evident. Therefore, maintaining optimum visual function, such as visual acuity, colour vision, depth perception (stereopsis), contrast sensitivity and peripheral vision, is essential.^(8,9) This body of work is largely motivated by society's need to preserve public safety on the roadways.

Because vision impairment is much more prevalent in later adulthood, many studies on vision and driver safety and performance focus on adults >50 years old. Because of this focus on the older adult population, other medical and functional co-morbidities common in late adulthood are potential confounders in understanding the relationship between vision and driving.

In particular, cognitive impairment elevates crash risk and impairs driving performance^(10,11). Thus, study designs that make use of older adult populations to study associations between vision and driving must consider cognitive co-morbidities whenever possible.

The relevance of these visual function parameters among drivers cannot be underestimated as by not attending to these complaints & continuing driving any vehicle may prove to be potentially hazardous for not only to the driver, but also to the public around. Hence, the need for this study including professional & occasional drivers hailing from Kolar district. The personal experience of the author, observing many patients, continuing to drive in spite of having poor vision was the foremost reason to start this study.

Objectives

1. To assess the visual acuity.
2. To identify the cause for reduced vision.
3. To advice patients regarding correction of vision for safe driving.

Methodology

An observational cross-sectional study. The study population included people having a history of driving — two-wheeler,

four wheeler or auto-rickshaw with Best corrected visual acuity (BCVA) less than 6/6 in better eye and screening camps for KSRTC bus drivers & Auto-rickshaw drivers in Kolar district were included. Patients coming to R L Jalappa hospital and Research center OPD a tertiary care hospital attached to Sri Devaraj Urs Medical College, Tamaka were also included. Patients who have stopped driving due to the reduced vision were excluded from the study. This study was conducted from November 2015 to October 2016. The sample size was 706, with confidence interval of 99%.

After taking informed consent from the drivers/subject, demographic data and a detailed history of drivers driving habits, general diseases and ocular diseases were noted. All drivers underwent a comprehensive ophthalmic examination which included best corrected visual acuity assessment, anterior & posterior segment examination, colour vision by Ishihara chart. Visual field assessment by Humphrey field analyser and intraocular pressure recording were performed wherever necessary. The cause for reduced BCVA was identified and advised treatment of the cause. Refraction was done at camp places too and spectacle prescription was given and counselled regarding safe driving.

After collection of data, it was entered into Microsoft excel data sheet & analysed using SPSS 22 version software. This included many educated class including doctors.

Results

706 patients were examined. Majority were males as expected because bus and autorickshaw drivers constituted the major bulk of patients. 630 (87.99 %) were males and 86 (12.01 %) were females. (Figure 1)

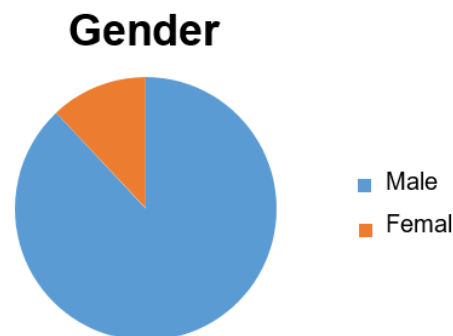


Fig 1. Gender distribution among the study group

The most common age group was between 20-30 years which constituted 202 (28.6%) followed by 40-50 years age group which was 188 (26.6%) and then 30-40years;184 (26.06%) and 132 (18.7%) were more than 50 years (Figure 2)

336 (47.59%) patients had more than 10 years of driving experience, 179 (25.3 %) had between 5- 10years and 191(27.0 %) had less than 5 years of driving experience. (Figure 3)

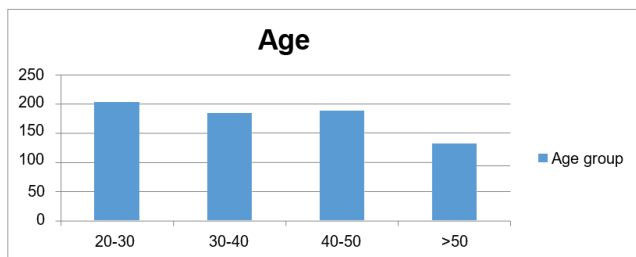


Fig 2. Age distribution among the study group

DRIVING EXPERIENCE

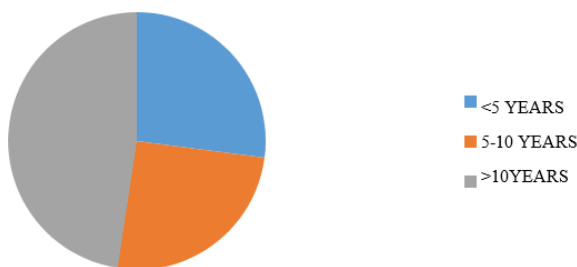


Fig 3. Driving experience in the study group

More interesting and astonishing finding was 206 (29.17 %) patients did not have any driving license including auto rickshaw drivers. (Table 1)

Table 1. Driving license details of the study subjects

LICENCE	TOTAL
YES	500
NO	206

Most of them were driving two-wheeler constituting 29% of the patients. 290 patients (41 %), did not have any eye checkup prior to our examination.

290 (41.08 %) patients were advised spectacle correction earlier. 92 (13.0 %) patients had minor to major accidents. In our study 58.9 % of the patients were advised glasses. (Table 2)

Table 2. Examination results

Eyes examined previously	Total
YES	416
NO	290
Advised glasses	Total
YES	290
NO	416

Discussion

An alarming incident was the cause for this study. A person who was the official driver of the Director of state government office was examined and found to be having cataract in both eyes with vision 2/60 and 1/60 in right & left eye respectively. This patient was advised surgery, but he refused for his own reasons. What may happen with such drivers around on the road is anybody's imagination and fear!! In our study also patients having vision less than 6/60 were 7 people, 6/12-6/30 were 92 of them. With this we can assess the severity of the situation.

Many drivers, most of them being two-wheeler drivers did not have driving license. Obviously, an ophthalmic examination was not being done to all of them. Some of them were aware of their decreased sight. The apprehension of being diagnosed of having some disorder with their sight, the unwillingness to wear spectacles, the fear of social stigma to use spectacles are very commonly seen in this society. Both male and female patients are affected by this.

Middle aged and late middle-aged patients having other co-morbid conditions like Diabetes leading to Diabetic Retinopathy and Hypertension leading to Hypertensive Retinopathy continue with their duties because of their increasing personal responsibilities. One patient of Retinitis Pigmentosa was observed.

With this background the incidents of accidents on the road can always be expected and explained. Such people are a threat to both themselves and some innocent people on the road or people who are travelling in commercial vehicles. Instead of blaming the authorities, it is the personal responsibilities of each individual to take care of such a serious issue and take necessary steps and prevent an adverse event.

Conclusion

Undoubtedly drivers driving any vehicle should have normal vision to avoid any untoward events on the roads. Individual awareness and responsibility plays the major role to achieve this and goal of this article is to put stress on everybody to shoulder their responsibility.

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