

Self Assessment Vision (SAV) Test: A Modified Approach to Reduce Road Accidents in India- A Case Study of Kolkata, West Bengal

Dr. Manasi De¹ Dr. Sudipta Dey²

¹ Associate Professor. Department of Geography, Lady Brabourne College, Kolkata. W.B, India.

² Director: Eye Microsurgery & Diagnostic Centre. 29 A Kali Kumar Banerjee Lane .Kolkata 700002.W.B India.

ABSTRACT: Road accident is becoming a serious problem in India. About 1374 accidents with 400 death occurrences have been taken place every day in all over the country. This creates an alarming situation in India. *Defective visual acuity of the drivers* must be considered as the prime causes of road accident. Most of the drivers (by profession or Self) are not properly aware about the necessity of regular eye checkup to maintain their normality of vision qualities which is not only necessary to reduce the number of accidents on the other hand save the life of the drivers and the commoners as well. In the time of primary investigation at Kolkata it was found that nearly 30% professional drivers of lorry, truck, tram and private cars, auto rickshaws are suffering from difficulties in vision quality that may be developed by refractive errors or different types of eye disorders like glaucoma, diabetic retinopathy, and so on. But they are either not aware about their difficulties or ignore it by the shortage of time and to save money, necessary for the treatment of the eyes. Most of the drivers (by profession) are belongs to poor economic classes in our society.

Self Assessment Vision test (SAV Test) is a system of vision quality checkup with the help of a modified Snellen chart (Fig 2) that can be displayed in public places like petrol pumps, bus stands, auto rickshaw stands, etc. Methods of eye testing are mentioned in the Snellen chart. So anybody can test the condition of their eyes following the instructions, mentioned in the chart in the three languages- English, Hindi and regional language. With the help of SAV Test drivers (professionals/ owners both) can easily understand their vision quality without wasting their money and time. In the time of self assessment if anyone feels any difficulties in their sight they can consult the eye care professionals for further treatment. The work is an observation, gathered from field survey at Kolkata Metropolis in India to assess the necessity of regular eye checkup of the drivers, associated with public and private transport systems to reduce the incidence of road accident with the help of SAV Test method..

Objective:

Main objective of this work is to find out the easiest way through which society can motivate the drivers (self or by profession both) for detection of the visual defects without wasting time and money to reduce the number of road accidents, caused by the difficulties of the driver's vision in India. .

Methodology:

Entire work is based on the (1) primary survey with the help of Modified Snellen chart in Kolkata. (2) Check up of vision acuity (3) Collection of secondary data and consultation of books and journals (4) Data processing and (5) Analysis.

Sample Size: 1026 drivers of different types of vehicles, moving in and around Kolkata Metropolitan City of the state of West Bengal, India.

Key word: Accident, Drivers', Snellen chart, Self assessment, Visual acuity,

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I. GENERAL OUTLINE

Road accident is becoming a part of life in our modern society. One report of the Ministry of Road Transport Department, Government of India shows that about 57 road accidents are occurred in one hour in a day with more than 17 casualties. So it is clear that 400 people and more are died every day by the road accidents in India. Road accidents are an outcome of the interplay of various factors, like length of road network, number and types of vehicles, population congestion along the roadsides, human behaviors regarding traffic rules and adherence/ enforcement of road safety regulations etc. Road accident causes injuries, fatalities, disabilities and hospitalization with severe socio economic costs across the country. Consequently, road safety has become an issue of concern both at national and international level.

It is a known fact that most of the road accidents are happened by the drivers' fault. More than 77% of the total road accidents in last five years in our country were held by the negligence of driver while 80% people involved in those accidents was injured and 18 % was died and remaining 2% was saved¹ from any casualties by God's grace. About of 5, 00,279 persons were injured by road accidents in 2015 in India¹. Highest motorization with rapid expansion in road network along with unplanned urbanization over the year India is facing increasing rate of road accident.

Have good vision in both eyes is one of the important physical fitness criterions to get the driving license in India. Good vision denotes "able to distinguish with each eye at a distance of 25 meters in good day light with glasses if worn".³ So drivers should have good vision in both eyes to control the rate of accidents in any place.

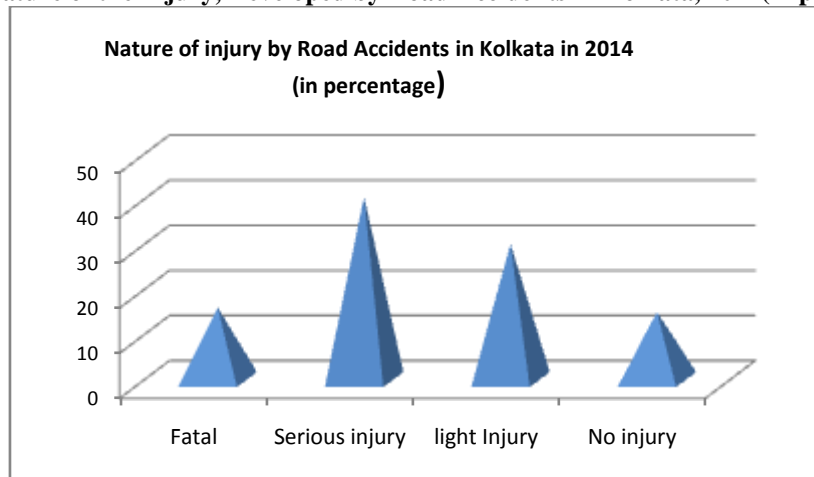
II. ORIGIN OF THE WORK

In the time of eye checkup of the drivers of public transport system like government bus, tram, rented car, lorry and truck in our Day Care Centre for Eye, it is observed that more than 50% drivers have several visual difficulties e.g matured cataract, tunnel vision developed by glaucoma, myopia, retinal disorders etc but most of them are either do not understand their difficulties or ignore the problem by the shortage of time, money or simply by their lack of knowledge. In general most of the public drivers, coming from the poor economic classes are normally use to come to the doctors for eye checkup only when they suffers from serious gloomy vision, or head ache, dryness of eyes etc. In most cases it is observed that the drivers, belongs to lower income group try to ignore their difficulties in preliminary stages because (1) they do not want to spoil a working day for the want of money. (2) they try to ignore their difficulties with the hope that it will be cured naturally with time (3) due to family problems, (4) shortage of money for further treatment and so on. Whereas self drivers are generally ignored their difficulties by their pressure of work, or by the suffering from chronic health ailments and also for some familial difficulties. This condition inspired us to think about the matter and try to do something to reduce the problem.

III. RESULT OF THE SELF ASSESSMENT VISION (SAV) TEST:

Self Assessment Vision (SAV) test is a test which uses a Modified Self Explanatory Snellen Chart. Size of the chart is 12inches x 18 inches that can be displaced in a public place like Petrol pump, bus or truck terminals, taxi, rickshaw/ auto stands for the use of persons, related with transport systems. The chart comprises of three lines **Red** (6/60 Blindness category as per NPCB), **Yellow** (6/18 –Visual Impairment) and **Green** (6/6 – Normal Vision). Size of the E letters is as per measurement for a distance of 3 metre or 10 feet for 6/60, 6/18, 6/6 vision. Narration of vision examination procedure along with pictorial demonstration is made with colour printing and suggestions for future action are written in different local languages for easy acceptance of public and use to check the status of their vision by him/ her. By this system drivers, specially belongs to poor economic classes and ignorant about their limitations of eye may become aware about their difficulties of vision. If they can understand (by the test) that they are suffering from vision deficiency then they would be able to consult an eye care professional for treatment of their sight.

Fig. 1: Nature of the Injury, Developed by Road Accidents in Kolkata, 2014(in percentage)



Source: Kolkata Traffic Police, Lalbazar

IV. PRIMARY SURVEY AND FINDINGS

From the month of April 2016 to March 2017 primary survey was conducted with the help of local NGO – Medical Bank in twelve bus, truck and auto terminals in different corners of Kolkata in West Bengal. The survey was conducted to examine the use of SAV Test by ignorant people and eye checkup of the drivers, having defects in their vision qualities. In the time of field survey the authors and their team tried to generate awareness regarding the necessity of the regular eye checkup and tried to motivate all the driving personals and also the people associated with transport systems to take part in the SAV Test without any hesitation. A questionnaire survey was also followed to know the awareness level of the drivers regarding the importance of correction of vision for the safety of the people of the area.

Table 1 Vision quality of the respondent drivers of Kolkata (in %)

Vision	Better eye	Worst eye
6/60 or less	06	20
6/18 or less	24	36
6/6	70	44

Source: Primary Survey at Kolkata

With the help of our SAV test chart it was found that 70% respondents, examined with available correction or with present glasses were in normal category (6/6) in better eyes. 30% with available correction or with present glass were in the category of visual impairment of which 06% with present glass having vision 6/60 or less were in blindness category in **better eye**. But if we consider the vision of other eye or worst eye it was found that only 44% had normal vision (6/6). 56% were in the category of visual impairment (6/18 or less) of which 20% were in blind category (6/60 or less) with the available correction. It is mandatory to have good vision in both eyes of the driver but the alarming picture shows that 30-56% drivers had vision below normal in both or one eye.

Table 2: Driving personals having the experience of eye examination

Person had visited hospital/ doctor earlier for eye examination	68%
Not Consulted with doctors earlier due to ignorance	32%

Source: Field Survey

From the table 2 it is clear that 32% divers had not consulted with eye care personals before SAV Test. Because they did not understood its necessity earlier before SAV Test. Most of them were illiterate and poor. It was also observed that many drivers of Bus, truck lorry, auto etc were not felt comfortable with spectacles.

V. CONCLUSION

From our observation we can conclude that more than 50% driving personnel have vision problems in one eye and many of them remained ignorant about their difficulties in eyes. This is the major causes of the road accidents in the city and adjoining areas. SAV Test is the easiest and gratis method for the assessment of the vision quality. Awareness generation is necessary for the acceptance of the Self Assessment Vision Test into the society. Attention of the State and Central Government and involvement of the NGOs will be needed in this matter and also to aware the people about the necessity of the regular eye checkup to reduce the accident and save the life. If the awareness generation is possible about the Self Assessment of Vision (SAV) test procedure and the test facility is available in petrol pumps, parking places, market places, bus, tram taxi stands, drivers would be able to assess their vision quality that may help to reduce the rate of road accidents and also save life in our country in future. This will need mass involvement of the society, print and mass media. Apart from that the strict implementation of norms of physical fitness criteria before issuing or renewal of driving license of the drivers will also force the drivers to consult the eye care personnel for correction of vision. Hope people will also be aware about the vision of their both eyes and will take necessary action to correct it by their own interest for the 'safe drive save life mission'.

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Fig 2: Modified Snellen Chart

আপনার চোখের দৃষ্টিশক্তি আপনি নিজেই পরীক্ষা করুন
SAV Test
 (Self Assessment of Vision Test)
 अपनी दृष्टि का परीक्षण स्वयं करें


VISION DANGER LIMIT	E W 3	ACTION URGENT EYE EXAM.
VISION BORDERLINE LIMIT	W M 3 E	ACTION NEED EYE EXAM.
VISION NORMAL	E 3 W M 3 E W	ACTION SAFE

Right Method



সঠিক পদ্ধতি
সহজ মত

Wrong Method



ভুল পদ্ধতি
সহজ মত

- ১। এই বোর্ডটির থেকে ১০ ফুট / ৩ মিটার দূরত্বে দোড়া হয়ে দাঁড়ান।
- ২। আপনার যদি চশমা থাকে তবে চশমাটি চোখে লাগান।
- ৩। এক হাতের তালু দিয়ে একত্রে বন্ধ করুন (হবির মত) এবং বোর্ডের দিকে তাকান।
- ৪। যদি সবুজ দাগের উপরে 'E' চিহ্নের বোলদ্রুম পরিষ্কার দেখতে পান তবে আপনার চোখ ঠিক আছে।
- ৫। যদি কেবলমাত্র হলুদ দাগের উপরের 'E' চিহ্নের বোলদ্রুম পরিষ্কার দেখেন তবে আপনার চোখ পরীক্ষা করা সরকার।
- ৬। আর যদি কেবলমাত্র লাল দাগের উপরে 'E' চিহ্নের বোলদ্রুম দেখেন বা কোন চিহ্ন না দেখেন তবে সে ক্ষেত্রে জরুরী ভিত্তিতে আপনার চোখ পরীক্ষা করা সরকার।
- ৭। এইবার অন্যহাত দিয়ে অন্য চোখ বন্ধ করুন ও একইভাবে চোখের পরীক্ষা করুন।

১. इस बोर्ड पर से 10 फुट या 3 मीटर की दुरी से खड़े हों।
2. अगर आपको चश्मा लगाना हो तो चश्मा लें।
3. किसी एक हाथ की तालु के साथ ही बंद कर लें और बोर्ड की ओर देखें, ध्यान दें कि तालु से न गलती से दृष्टि करनी है। (नीली जो खोले न हों)
4. अगर आप होले की पट्टी के ऊपर निश 'E' चिह्न के बोल द्रुम मुझ को देख पाते हैं तो आपकी दृष्टि ठीक है।
5. अगर पीली रंग की पट्टी के ऊपर निश 'E' चिह्न के बोल द्रुम मुझ को देख पाते हैं तो आपको अपनी नीली का परीक्षण करना चाहिए।
6. अगर आप किसी रंग की पट्टी के ऊपर निश 'E' चिह्न के बोल द्रुम मुझ को नहीं देख पाते हैं तो आपको जल्दी से परीक्षण करवाना चाहिए।
7. इसी तरीका से फिर दूसरे आँख से परीक्षण करें।

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 For any information & queries please contact : Dr. Sudipta Das - Director (033) 24521122 or Mr. D. Anup - Secretary (033) 24521122

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