Evaluation of Visual Acuity among Commercial Motorcyclists (Okada Riders) in the Main Campus of Abia State University Uturu Abia State Nigeria

ABSTRACT

The visual ability of road users is fundamental to traffic safety, but, despite the high burden of traffic crashes and associated mortality in low-income countries such as Nigeria, evidence for an association between vision function and traffic safety outcomes is scarce. Therefore, the aim of this work is to evaluate the visual acuity of commercial motorcyclists operating within the main campus of Abia State University, Uturu. Two hundred operators who had been on the job for at least one year constituted the test population, while staff and students of Abia State University, Uturu, who were sex and aged-matched and who are not commercial motor cyclists constituted the control group. Data were obtained with the aid of a structured questionnaire and clinical examinations were carried out by standard procedures. Results showed that Snellen's fraction which is a mark of visual acuity for the left eyes of control and test groups was recorded as 0.98+- 0.30 and 0.88+- 0.35 respectively and for the right eyes 0.99+- 0.10 and 0.87+- 0.50 respectively. Only 38% of test group had normal visual acuity of 6/6 compared to 73% of control. Visual acuity correlated negatively with age for the left (r = - 0.712) and right (r = - 0.740) eyes as well as with length of service for left (r = -0.623 and right (r = - 0.632) eyes of motorcyclist operators. In conclusion, visual acuity was inversely proportional to age and length of service.

Keywords: Commercial Motorcyclists, Visual acuity, Road safety, Aging and length of service, Uturu.

INTRODUCTION

The operation of commercial motorcycle also known as okada is an integral component of public transportation in modern day Nigeria. It is critical to meeting people's need for transportation, particularly in strategic locations within the rural and urban centers [1] by trader, government workers, and students to overcome traffic congestion [2]. It is offers viable job opportunity to number of jobless Nigerian youths and no doubt has been given a pride of

place in the Nigerian economic system. Traditionally, okada operators across the nation are registered as members of a union whose leadership pays little or no attention to the functionality of an intending member's sight before incorporation nor periodically probes that of the existing members to substantiate eligibility to sustain operation or otherwise stop. This is particularly important owing to the fact that uncorrected vision problems are common among drivers, while reduced visual acuity appears to be associated with crash risk [3].

Vision testing is the basic test generally recommended for drivers. This is because of the indispensability of vision to driving as good visual acuity in addition to good stereopsis, normal colour vision, satisfactory eye coordination and the ability to adapt to various levels of illumination are essential to a driver in order to avoid road traffic accident (RTA) which claims an estimated 1.2 million lives annually throughout the world (Road safety Nigeria [4]. Available spaces in the students' hostels in main campus of Abia State University Uturu are sufficient to accommodate all students. As a result, students opt for rented apartments most of which are situated far away from the university campus in addition to having such road structures that can only be plied by motorcycles. More so, visitors to the university would always prefer to patronize commercial motor cycle operators for convenience in locating their destinations. Generally, the demand for commercial motor cycle among members of the university community and visitors abound basically for convenience and speed thus underscoring the importance of the services rendered by the commercial motor cycle operators within the study area.

The urgent need to initiate efforts towards averting the proposed over 50% increase in Road Traffic Accident (RTA) resulting from visual impairment among drivers in the next 20 years

by the World Health Organization [5] is undoubtedly imperative and should be strategically and judiciously pursued with the instrumentality of a goal oriented research.

METHODOLOGY

Sampling

A total of 200 motorcyclist operators were randomly selected from the main campus of Abia State University Uturu Abia State Uturu. Staff and students of Abia State University, Uturu constituted the control group. Ethical approval was obtained from the Abia State College of Medicine Ethical Committee.

Vision Testing

Each participant was seated in a well illuminated room and visual acuity was assessed using Snellen E chart hung on a wall at a distance of 6 meters. Each eye was tested separately and when visual acuity is less than 6/6, pinhole test was done. Commercial motorcyclist operators who met the minimum standard (Visual acuity of 6/12 in the better eye and 6/36 in the poorer eye) stipulated by FRSC for issuance of driving license were considered eligible. Those whose visual acuities were worse than 6/12 on either eye were further examined to find the cause of decreased vision. Anterior segment examination was done using penlight to check for abnormalities such as swelling, growths, discolorations, opacities etc. Fundoscopy was done using direct ophthalmoscope.

Data Collection

Data was collected using standard examination format from interested participants. Data obtained were analysed using SPSS 16.0.

RESULTS

Table1: Age group of study participants

Age group	Number	Percentage
<20	15	7.5
21-30	20	10
31-40	31	15.5
41-50	118	59.
51-60	16	8.0

Table 2: Visual acuities of the Control (staff and students)

Visual acuity	Better Eye		Second Eye	
	Frequency	**Percentage**	**Frequency**	**Percentage**
6/6 or better	105	52.5	85	42.5
< 6/6-6/9	50	25.0	45	22.5
< 6/9 – 6/12	35	17.5	30	15.0
< 6/12 – 6/18	10	5.0	25	12.5
< 6/18 – 6/24	-	-	14	7.0
< 6/24 – 6/36	-	-	1	0.5
< 6/36 – 6/60	-	-	-	-
< 6/60 -3/60	-	-	-	-
< 3/60	-	-	-	-
Total	200	100	200	100

Table 3: Visual acuities of Motorcyclist Operators in Abia State University

Visual acuity	Better Eye		Second Eye	
	Frequency	**Percentage**	**Frequency**	**Percentage**
6/6 or better	10	5	-	-
< 6/6 – 6/9	50	25	45	22.5
< 6/9 – 6/12	70	35	55	27.5
<6/12 – 6/18	16	8	30	15
< 6/18 – 6/24	24	12	20	10
< 6/24 – 6/36	30	15	50	25
< 6/36 – 6/60	-	-	-	-
< 6/60 – 3/60	-	-	-	-
< 3/60	-	-	-	-
Total	**200**	**100**	**200**	**100**

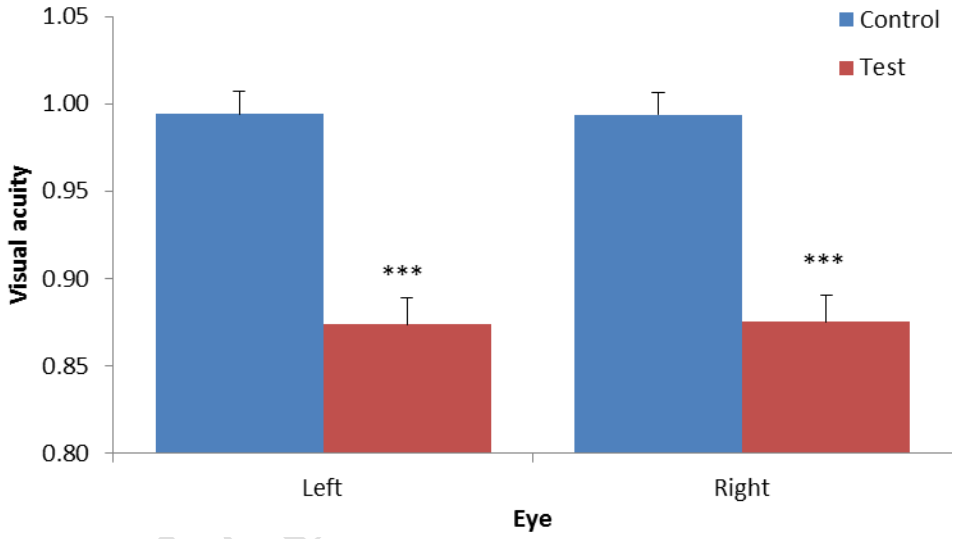

Figure 1: Visual acuity of both left and right eyes of motorcyclists

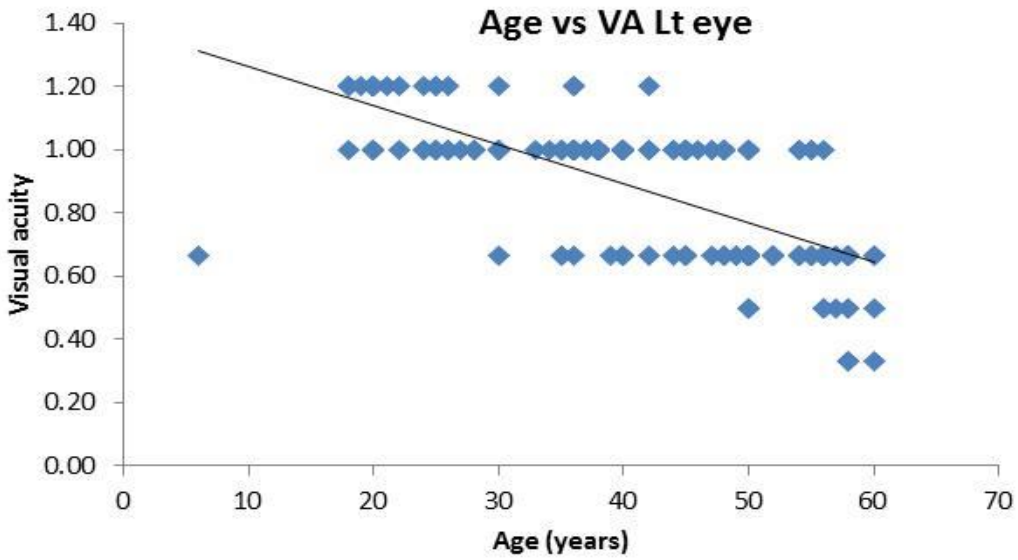

Figure 2: Relationship between age operators and left eye visual acuity

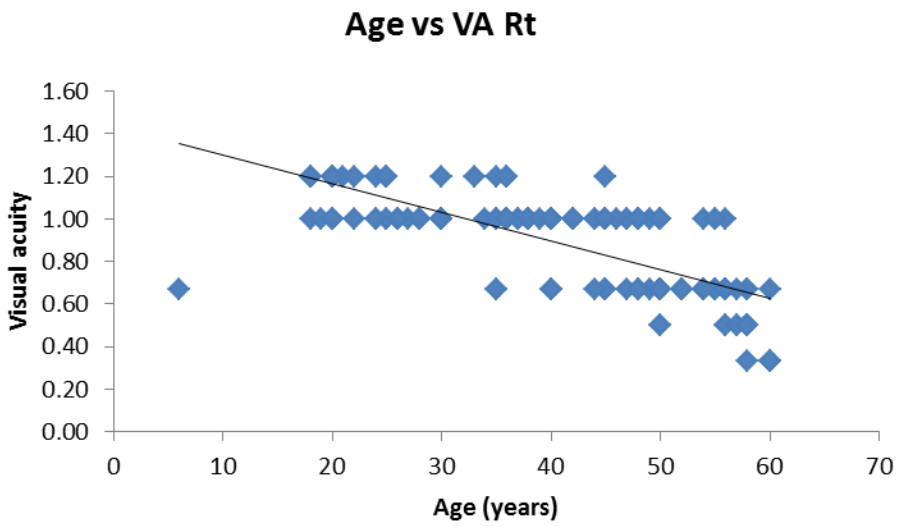

Figure 3: Relationship between age operators and right eye visual acuity

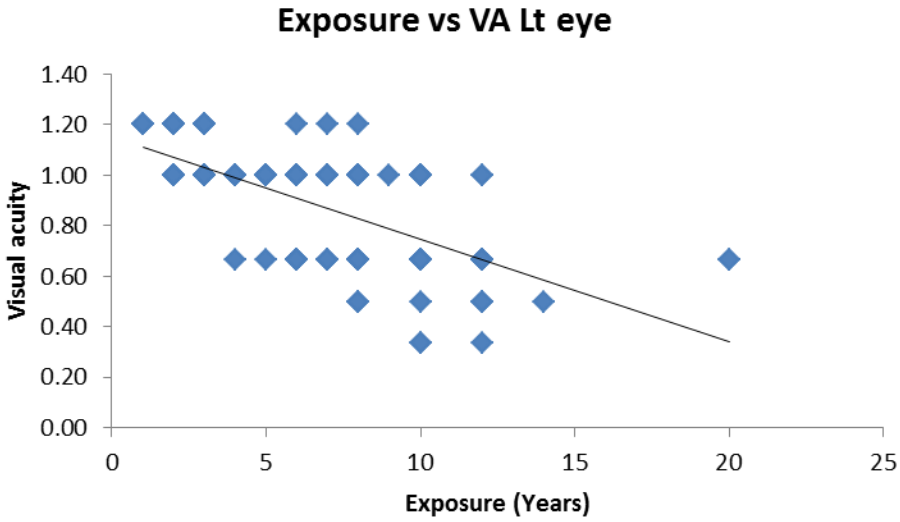

Figure 4: Relationship between exposure period and left eye visual acuity

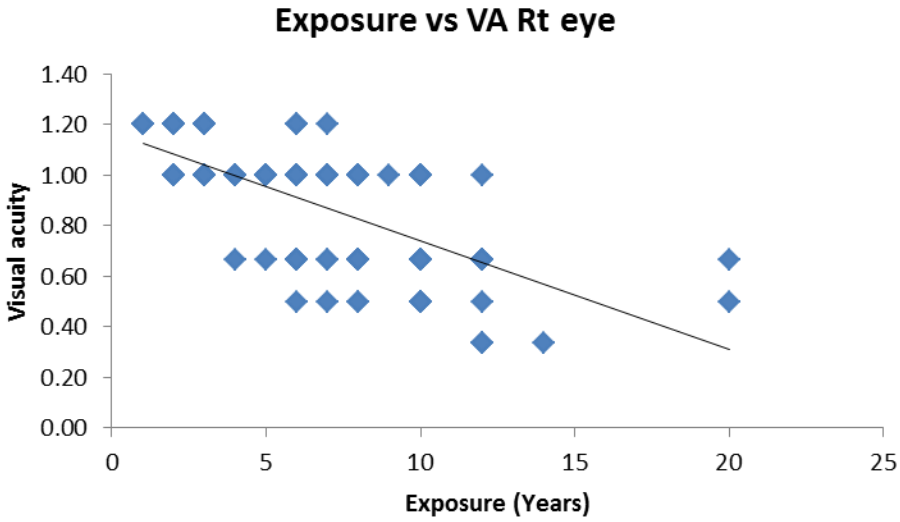

Figure 5: Relationship between exposure period and right eye visual acuity

DISCUSSION

Road traffic accidents is the world's leading cause of death as a result of injury [6]. Motorcyclist operators are one of most vulnerable road users to die from road traffic accidents [7]. The results of this study showed that Snellen's fraction which is a marker of visual acuity for the left and right eyes of commercial motorcyclists was less than that reported for their control counterparts. Thus, indicating obvious visual loss among motorcyclist operators within the main campus of Abia State University. This could be attributed to exposure of eyes to numerous injurious factors such as as dust and ultraviolet rays. This result is consistent with the finding of Owoaje et al. [8] who reported visual loss among commercial motorcyclist operators. There was a linear negative correlation between age and visual activity of the left and right eyes of commercial motorcyclist operators. This is a physiological phenomenon in which the eye lens progressively becomes unable to change shape when acted upon by the ciliary muscle at about the age of 40 and above [9]. This is consolidated by the finding of this study since about 59% of commercial motorcyclists were 40 years and above. There was also a linear negative correlation between length of service and visual acuity of the left and right eyes of commercial motorcyclist operators with significant decrease in Snellen's fraction with increased years of service. In a related study, length of service was discovered as one of the predisposing factors to ocular disorders in the welding business in Calabar.

REFERENCES

[1] Ibhazehiebo K, Ighoroje ADA, Uche OK, Ogisi FO, Iyawe V. Impact of noise on hearing amongst commercial motro bike riders in Benin City, Nigeria. JMBR 2008. 7 (1& 2); 5-11.

[2] Odeleye, JA. Road traffic congestion management and parking infrastructural planning in metropolitan Lego: the linkage. World Transport Policy & Practice. 2011.17(1).

[3] Oladehinde MK, Adeoye AO, Adegbehingbe BO, Onakoya AO. Visual functions of commercial drivers in relation to road accidents in Nigeria. Indian J Occup Environ Med. 2007. **11:** 71–75.

[4] Nwosu SNN. Vision Survey of government motor vehicle drivers in Oyo State. Fellowship dissertation National Postgraduate Medical College of Nigeria, May 1989.

[5] Oyemade A. Epidemiology of road traffic accidents in Ibadan and its environs. Niger Med J.1973. 3(4):174–177.

[6] World Health Organization, Department of Injuries and Violence Prevention. Non-communicable Diseases and Mental Health Cluster, the Injury Chart Book, A graphical overview of global burden of injuries 2002.

[7] Koornstra, M.K (2008). Transport Safety Performance in EU. Brussels European Transport Council, Transport Accident Statistics working Party 2003 (http://:http://www.etsc.eu/documents/statoverv.pdf, accessed 25 July, 2008.

[8] Owoaje ET, A moran OE, Osemeikhain O, Ohnoferi OE. Incidence of road traffic accidents and pattern of injury among commercial motorcyclists in a rural community in South Western Nigeria. JCMPH. 2005: 17 (1); 7-12.

[9] Tamm E, Croft M, Jungkunz W, Litjen-Drecoll E andKaufman PL. Age-related loss of ciliary muscle mobility in the rhesus monkey. Role of the choroid. Arch. Ophthalmol. 1992. 110, 871-876.