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RESEARCH PAPER**ROAD SAFETY, ALCOHOL CONSUMPTION AND VISUAL FUNCTION OF MOTOR BIKE RIDERS IN EKPOMA, EDO STATE, NIGERIA****Asogun, D.¹, Tobin, E.¹, Ochei, O.¹, Momoh, J.¹, Ogbetere, Y.¹,
Ukponahunsi, E.²**¹Department of Community Health, Irrua Specialist Teaching Hospital, Irrua, Edo state, Nigeria²Ambrose Ali University, Ekpoma, Edo state, NigeriaCorresponding author: Dr Asogun Danny, +234(8)34869948 asogun2001@yahoo.com**Received: 2nd September, 2016****Accepted: 29th September, 2016****Published: 30th September, 2016****Endorsed By:** Innovative Science Research Foundation (ISREF) and International Society of Science Researchers (ISSCIR). **Indexed By:** African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society; and IRMS Informatics India (J-Gate)**ABSTRACT**

Causes of road traffic accidents (RTA) in developing nations have been attributed in part, to poor vision due to excessive alcohol consumption. This cross-sectional study assessed the visual acuity of 230 male motor-bike riders in Ekpoma, Edo State, Nigeria, and their potentials for alcohol abuse, using the cluster sampling technique. A semi-structured interviewer/self administered questionnaire was used to collect data on socio-demographic characteristics, road traffic accidents and alcohol use, while visual acuity was assessed with a Snellens chart. Results showed good right and left eye vision among 68.3% and 71.3% of the riders respectively, but visual impairment was observed among 25.2% (right) and 26.5% (left) of the riders, and the impairment was severe among 6.5% (right) and 2.2% (left) of them. Up to 69.57% had potential for alcohol abuse, while 5.22% and 25.22% had borderline or no potential for alcohol abuse respectively. About half of the respondents (118; 51.3%) have had a road traffic accident in the last one year and there was a statistically significant association between visual acuity and road traffic accidents ($P = 0.000$). Although majority of respondents had good visual acuity and a high potential for alcohol abuse, there involvement in road traffic accidents was low.

Keywords: Poor vision, Visual acuity, Road traffic accident, Alcohol abuse**INTRODUCTION**

Motor-bikes, popularly known as 'Okada' in some West African countries, is the most popular, cheap, and adaptable means of transportation in Nigeria with a high potential risk of road traffic accidents (RTA); which could be fatal sometimes (Ogunmodede *et al.*, 2012). Its use within some Nigerian cities, like Lagos and Abuja has been prohibited (Ogunmodede *et al.*, 2012). The consumption of alcohol and other beverages as an integral part of human cultures, meals, celebrations and religious ceremonies, dates back to many centuries ago (Odejide, 2006).

According to the National council on alcoholism and drug dependence, and the American Society of addiction medicine, alcoholism is defined as a primary chronic disease with genetic, psychosocial and environmental factors influencing its development and manifestation (Odejide, 2006). The disease is often fatal, characterized by impaired control over drinking, preoccupation with the drug alcohol, distortions in thinking notably denial and compulsive use of alcohol despite adverse consequences (Odejide, 2006). Those at risk of developing alcoholism are men who take 15 or more drinks a week, women who take 12 or more drinks a week or anyone who takes five or more drinks per occasion at least once a week. One drink is 12-ounce bottle of beer, 5-ounce glass of wine or a 1 ½-ounce shot of liquor. In Africa and the globe, wine, beer, spirit and other alcoholic beverages are widely consumed. (Odejide, *et al.*, 1999; Odejide, 2006; Obot, 2000; Demehin, 1984; Korieh, 2003).



Alcoholism has contributed to a considerable portion of human misery. Simply put, alcoholism is addiction to alcohol but beyond this basic definition, the symptoms of alcoholism can be difficult to pinpoint. They include craving for alcohol, lack of self-control when drinking, a high tolerance to the effects of alcohol and physical withdrawal symptoms, such as sweating, shakiness, and anxiety, when alcohol use ceases. Alcoholics often continue drinking despite alcohol-related problems such as losing a job, harming friends or family, or getting into trouble with the law (Odejide, 2006). According to the World Health Organization (WHO), hazardous or harmful drinking was responsible for about 2.25 million global deaths in 2004, accounting for 3.8% of global mortality (WHO, 2004). It's also known that about 45% of the global burden of disease, measured by disability-adjusted life years (DALY) is due to alcohol; 25% of these are due to the relationship of alcohol to liver cirrhosis, CVD and cancers (Corrao *et al.*, 2004; WHO, 2009).

Recent data from WHO released in 2011 (WHO, 2014), Nigeria tops the list of African countries in alcohol consumption (alcohol consumption measured in equivalent litres of pure ethyl alcohol consumed per capita). The national adult per capita consumption was estimated at 12.3 (WHO, 2014). Also, alcohol being among the most commonly used substances has a life lifetime prevalence rate of 77% among youths (Adelekan, 1992).

Visual acuity is defined as measurement of the spatial resolution of the visual processing system (Peter, 2009). It also refers to the ability of the eye to recognize the separateness of two objects placed together (Sembulingam *et al.*, 2006). Hermann Snellen in 1862 published the Snellen's lettered visual acuity chart used for assessment of visual acuity (Peter, 2009). Snellen defined a new font which he called optotypes which he laid out on a 5×5 grid. Using the standard of dividing a degree into 60 minutes, he defined standard vision as the ability to recognize his optotypes from a distance of 20 feet when they subtended an angle of 5 minutes of arc. The reference value above which visual acuity is considered to be normal is 6/6 vision or 20/20 vision (USC equivalent). At 6meters or 20 feet a human eye with that performance is able to separate contours that are approximately 1.75mm apart. Vision of 6/12 corresponds to lower, vision of 6/3 correspond to better vision (Peter, 2009). Normal individuals have a visual acuity of 6/4 or better (depending on the age and other factors). In the expression 6/x, the numerator (6) is the distance in meters between the subject and the chart and the denominator (x) the distance at which at which a person with 6/6 acuity will discern the same optotype. Thus 6/12 vision means a person with 6/6 vision will discern the same optotype from 12meters away (i.e. at twice the distance) (Peter, 2009).

External factors can interfere with visual acuity such as smoking, drugs, alcohol, non-communicable diseases like diabetes, hypertension etc (Anera *et al.*, 2011). Although acute alcohol intoxication has been shown to affect different aspects of vision including visual acuity for moving stimuli, ocular motor balance, procession of motion, visual short term memory and stereoscopic vision, but only few studies has been carried out to access the effect of chronic alcohol use on visual performance (Sekuler *et al.*, 1979; Maccarthy *et al.*, 1980).

Road traffic injuries affect people throughout their lives, but the biggest impact is on the young and economically active years. In the western pacific region, they are the number one cause of death of people aged 15-49. Seventy-seven percent of traffic deaths occur among men, and half of all deaths occur among vulnerable road users, including pedestrians, motorcyclists, and bicyclists (World Health Organization, 2013).

Alcohol is the major risk factor for road traffic accident (RTA) and subsequent trauma. It is the leading risk factor of disease, disability, and premature mortality in the western Pacific and the third leading risk factor globally (WHO, 2014). In Nigeria, the federal road safety commission (FRSC) has enumerated well over 20 causes of road traffic accidents. These include excessive speed, inexperience, alcohol intoxication, negligence of road safety rules, bad roads etc. while all these are true, a commonly neglected cause of road traffic accidents is poor vision. Good visual acumen is necessary for driving and other occupations in which good and efficient visual functioning is required. The consequences of harmful use of alcohol is especially fatal for the younger age groups and alcoholism is a leading cause of death among males aged 15-59 (WHO, 2014). Poor vision or problems with visual acuity is a recognized cause of road traffic accidents (RTA) worldwide, with a large proportion of the burden in African, especially Nigeria.

The rate of RTA among okada riders in Esan West Local Government Area seems to be on the increase. This has to be backed up by data which is derivable from a study such as this. This will help put strategies in place to ensure okada riders are fit to work by introduction of routine visual assessment and tests for alcohol level, thereby ensuring the safety of their passengers. It is therefore the aim of this study to access potential alcohol abuse and visual acuity among okada riders in Esan West Local Government Area in Edo State, Nigeria.



METHODOLOGY

Study area: This study was done in Esan West Local Government Area of Edo State Nigeria. This area lies between latitude 60° 40' N 60° 45' and longitude 60° 05' E 60° 10' E. (Obabori *et al.*, 2006). It has an annual rainfall that exceeds 200mm (Aziegebe 2006). It is bounded by Uhumwonde local government to the south, Igueben local government to the east, Owan west local government to the west and Esan Central local government to the north. It is densely populated with okada riders probably because the area houses the state owned university (Ambrose Alli University), several banks, small businesses secondary and primary schools, churches, hotels etc. Ekpoma is the administrative head quarters of the LGA. In 2006, the national population commission carried out a census and reported a population of approximately 125842 (63785 males and 62037 females) (Akpamu *et al.*, 2011). Majority of the population are undergraduates, lecturers and teachers, pupils, farmers, market traders and small business owners. The major communities within Ekpoma include Ujemen, Irukpen, Ihumudumu, Ujoelen, Eguare, Emuado, Illeh, Eke, Uhiele, Ukpenu, Igor, Igoro and Idumebo. Indigenes speak Esan and the major occupation among them is farming and trading. Food preference is predominantly rice, pounded yam and cassava.

Study design: This is a cross sectional descriptive study among okada riders in Esan West Local Government Area of Edo State, Nigeria.

Study population: Taxi-cabs and motorcycle (okada) are the major means of transportation for majority of the population. However, there is preference for motorcycles because it's common and can relatively, take individuals to their destinations faster. This has made motorcycles the common commercial means of transportation; with motorcyclists depending on it as a source of livelihood. Such motorcycle riders in Ekpoma formed the population for this study.

Inclusion and Exclusion criteria: Male okada riders in Ekpoma without obvious visual anatomic defects and can read the English alphabets, were included in this study, while those with deficiency in the stated criteria were excluded.

Study duration: This study lasted for a period of 6 months, from February to July 2016.

Sample size determination: The sample size was determined using the Cochran formula for sample size determination in descriptive study:

$$N = \frac{z^2 pq}{d^2}$$

Where;

Z = standard normal deviate set at 1.96

P = expected prevalence of study = 16.0 % (0.160) (WHO, 2014)

q = 1 - p = 1 - 0.160 = 0.84

d = margin of error = 0.05

n = $1.96^2 \times 0.84 \times 0.160 / 0.05^2$

n = $3.841 \times 0.1344 / 0.0025$

n = $0.5162 / 0.0025$; n = 206.5

10% attrition was added for non responses

10% of 206.5 = 20.65

Total sample size = 206.5 + 20.65 = 227.15

Sampling technique: Cluster sampling technique was used in which each motorcycle park in Ekpoma was chosen as a cluster and all the okada riders present were interviewed. Venues for sample collection (okada parks) included the Ambrose Alli University motor park, Irrua park at market square, Emuado park and Igueben park at Opoji junction.

Study instruments. A total of 230 questionnaires were administered to respondents, this incorporated the Short Michigan Alcohol Screening Test to assess potential alcohol abuse. The Snellen's chart was used to assess the visual acuity of respondents, as they were asked to read the alphabets from the chart. A measuring tape was also used to measure a distance of 20 feet (6 meters) where the Snellen's chart was hung from the subject.



Method of data collection: This study was carried with the use of a semi-structured, interviewer/self administered questionnaire consisting of both open ended and closed ended questions. Questionnaires were interpreted in Pidgin English and Esan dialect. The Short Michigan Alcohol Screening Test used to assess potential alcohol abuse captured 13 questions. Each question answered YES, is scored 1 and questions answered NO is scored 0. A score of 0-2 indicates no alcohol problem, a score of 3 indicates borderline alcohol problem while a score of 4 or more indicates potential alcohol abuse. The Snellen's chart was hung at a distance of 20 feet (6 meters) from the subjects with the use of a measuring tape and the subjects in a seated position. The left eye was occluded with an opaque plastic occlude while the subject is asked to read aloud the letters in the Snellen's chart from the largest to the smallest with the right eye. The same procedure was done for the left eye with the right eye occluded. The visual acuity was taken unaided, it was aided where the subject had spectacle correction and with a pinhole disc in place where the visual acuity was less than 20/20 (6/6). A visual acuity of 6/6-6/18 considered to be normal was classified as good vision, while less than 6/18-6/60 considered as visual impairment, less than 6/60-3/60 considered as severe visual impairment and less than 3/60 considered as blindness were classified as poor vision (WHO,1984).

Data analysis: Data collected was analyzed for statistics using the statistical package for social sciences (SPSS) version 20. Summary statistics for mean, percentages as well as standard deviation and variance were used where appropriate. Chi square test and odd ratio were performed for significance analysis and measure of dispersion. Level of significance was set at $P < \text{or} = 0.05$.

Ethical consideration:

1. A Letter for ethical approval was submitted to the Hospital Ethical Review Board ISTH for approval of the study.
2. The chairman of the motorcycle association in the various parks was properly informed about the aim of the study and method of data collection.
3. Informed consent was obtained from all the subjects before commencement of data collection.
4. A collaborative institutional training initiative (CITI) programme on good clinical practice and National ethics code was completed and signed.
5. The privacy of the subjects was well protected by designing the questionnaire in such a way that they can't be identified

Study limitation: There was communication barrier due to the low educational status of respondents. This might have affected the answers given.

RESULTS

Socio-demographic characteristics: Most (45.7%) were within the age group of 20 – 30 years; with a mean age of 35.39 ± 8.46 SD. More than half (53.9%) of the respondents were married and majority (94.8%) were Christians. Using the Short Michigan Alcohol Screening Test (SMAST), only a few (25.22%) did not have potential for abusing alcohol. Fewer (5.22%) had borderline potential, while most (69.57%) have the potential to abuse alcohol (figure 1).

Visual acuity range of respondents: Using the Snellen's chart, each eye was categorized as having Good Vision, Visual Impairment and Severe Visual Impairment. Most of the respondents were observed to have good vision on the right eye (68.3%), as well as the left eye (71.3%) (Table 2).

Prevalence of road traffic accidents among bike riders: Of the total 230 okada riders interviewed, 118 (51.3%) have been involved in an accident, at least once, in the past one year. Of the 118 riders, 53 (23.0%) were involved in a Road Traffic Accident (RTA) once while 65 (28.3%) were involved twice. The total number of RTA in the past one year was thus, 53 plus 130 (65 times 2). That is 183 accidents among okada riders. The prevalence of RTA among okada riders in this study will therefore be 183 divided by 230 (183/230), times 100%. This is equal to 79.6%. That is to say that; for every 100 okada riders, 79.6 (approx. 80) have been involved in at least one road traffic accident (however mild) in the last one year. This is indeed very high (Table 3).

Relationship between prevalence of RTA and potential for alcohol abuse among bike riders: Majority (76.5%) of those involved in RTA in the past one year were those who have potential for alcohol abuse, whereas only 21.6% of those with no potential for alcohol abuse were involved in RTA in the past one year. This finding was not unexpected. However, the relationship between the Prevalence of RTA and Potential for Alcohol abuse was not statistically significant ($P=0.345$).



This may be explained by the fact that the SMAST score used in this study only assessed the respondent's potential for abuse and not outright alcohol abuse (Table 4).

Relationship between visual acuity and prevalence of road traffic accidents among bike riders: Using the Snellen's chart, respondents were categorized as having Good Vision, Visual Impairment or Severe Visual Impairment. Most of the respondents involved in RTA in the past one year had visual impairment of the right eye (74.3%) while 85.2% of them had visual impairment on the left eye. Expectedly, majority of the respondents with good vision on the right eye (86.6%) and left eye (87.2%) were not involved in RTA in the past one year. This study thus observed a statistically significant ($P=0.000$) relationship between visual acuity and the prevalence of RTA (Table 5)

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Variables	Frequency (n=230)	Percent (%)
Age Group		
20 – 30 years	105	45.7
31 – 40 years	73	31.7
41 – 50 years	34	14.8
> 50 years	18	7.8
Marital Status		
Single	106	46.1
Married	124	53.9
Religion		
Christian	218	94.8
Muslim	8	3.5
African Traditional Religion (ATR)	4	1.7
Ethnicity		
Esan	110	47.8
Bini	62	27.0
Igbo	27	11.7
Hausa/Fulani	8	3.5
Others	23	10
Level of Education		
Primary	16	7.0
Secondary	138	60.0
Tertiary	76	33.0

Potential for alcohol abuse

Relationship between Socio-demographic factors and potential for alcohol abuse: Bike riders > 50 years of age had 100% potential for alcohol abuse, while 91.2% of those aged 41-50years had potential for alcohol abuse, 91.8% of those aged 31-40 had potential for alcohol abuse and 41.9% of those aged 20-30 had potential for alcohol abuse. Up to 59.4% of single okada riders had the potential to abuse alcohol while 78.2% of those married had potential for alcohol abuse. As per religious beliefs, 71.6% of Christians had potential for alcohol abuse, 100% of Muslims had borderline potential, while 100% of traditional worshippers had potential for alcohol abuse. For those who had attained tertiary level of education, 98.7% of them had potential for alcohol abuse, compared with 52.9% of those with secondary level of education, while 12(75.0) of the respondents with primary level of education, had potential for alcohol abuse (Table 6).



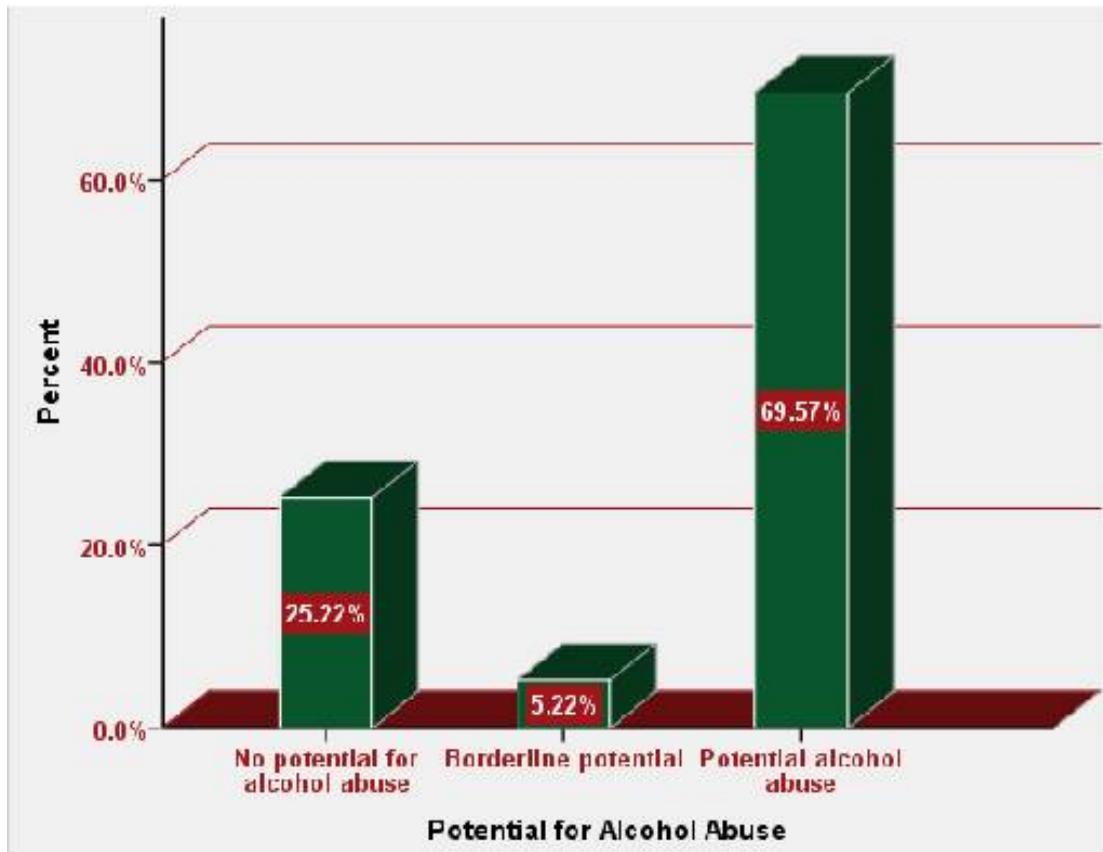


Figure 1: Potential for Alcohol Abuse among Respondents.

TABLE 2: Visual acuity range of respondents

Visual Acuity Range	Frequency (n)	Percentage (%)
Right Eye		
Good vision	157	68.3
Visual Impairment	58	25.2
Severe Visual impairment	15	6.5
Total	230	100
Left Eye		
Good Vision	164	71.3
Visual Impairment	61	26.5
Severe Visual Impairment	5	2.2
Total	230	100



TABLE 3: Prevalence of road traffic accidents among bike riders.

	Frequency	Percentage (%)
Do you have a history of road traffic accident in the past one year?		
Yes	118	51.3
No	112	48.7
TOTAL	230	100
How many times were you involved in RTA in the past one year?		
Once	53	23.0
Twice	65	28.3
TOTAL	118	51.3

TABLE 4: Relationship between the prevalence of Road Traffic Accident and potential for alcohol abuse among bike riders.

Potential for alcohol abuse road traffic accidents	Potential for alcohol abuse road traffic accidents		Total
	Yes (Percent %)	No (Percent %)	
No Potential For Alcohol Abuse	11(21.6)	47(26.3)	58(25.2%)
Borderline Potential For Alcohol Abuse	1(2.0)	11(6.1)	12(5.2%)
Have Potential For Alcohol Abuse	39(76.5)	121(67.6)	160(69.6%)
Total	51(100%)	179(100%)	230(100%)

 $\chi^2=2.127$; $df=2$; $P=0.345$


TABLE 5A: Relationship between visual acuity (Left eye) and prevalence of road traffic accidents among bike riders

VISUAL ACUITY (LEFT EYE)	ROAD TRAFFIC ACCIDENT		
	Yes (%)	No (%)	Total (%)
GOOD VISION	27 (13.4)	175(86.6)	202(100%)
VISUAL IMPAIRMENT	23(85.2%)	4(14.8%)	27(100%)
SEVERE VISUAL IMPAIRMENT	1(100%)	0(0.0%)	1(100%)
TOTAL	51(22.2%)	179(77.8)	230(100%)

$\chi^2=74.710$; $df=2$; $P=0.000$

TABLE 5B: Relationship between visual acuity (Right eye) and prevalence of road traffic accidents among bike riders

VISUAL ACUITY (RIGHT EYE)	ROAD TRAFFIC ACCIDENT		
	Yes (%)	No (%)	Total (%)
GOOD VISION	25 (12.8)	170(87.2)	195 (100)
VISUAL IMPAIRMENT	26(74.3)	9(25.7)	35(100)
SEVERE VISUAL IMPAIRMENT	0(0.0)	0(0.0)	0(0.0)
TOTAL	51(22.2)	179(77.8)	230(100)

$\chi^2=64.963$; $df=2$; $P=0.000$



TABLE 6: Relationship between Socio-demographic factors and potential for alcohol abuse

	Potential for alcohol abuse			Total (%)
	No potential for alcohol abuse (%)	Borderline potential for alcohol abuse (%)	Potential for alcohol abuse (%)	
Age Group				
20-30 years	57(54.3)	4(3.8)	44(41.9)	105(100)
31-41 years	1(1.4)	5(6.8)	67(91.8)	73(100)
41-50 years	0(0.0)	3(8.8)	31(91.2)	34(100)
>50 years	0(0.0)	0(0.0)	18(100)	18(100)
Total	58(25.2)	12(5.2)	160(69.6)	230(100)
$X^2=88.724$; $df=6$; $P=0.000$				
Marital Status				
Single	39(36.80)	4(3.8)	63(59.4)	106(100)
Married	19(15.3)	8(6.5)	97(78.2)	124(100)
Total	58(25.2)	12(5.2)	160(69.6)	230(100)
$X^2=14.133$; $df=2$; $P=0.001$				
Religion				
Christian	58(26.6)	4(1.8)	156(71.6)	218(100)
Muslim	0(0.0)	8(100)	0(0.0)	8(100)
Traditional	0(0.0)	0(0.0)	4(100)	4(100)
Total	58(25.2)	12(5.2)	160(69.6)	230(100)
$X^2=152.133$; $df=4$; $P=0.000$				
Tribe				
Bini	19(30.6)	4(6.5)	39(62.9)	62(100)
Esan	20(18.2)	0(0.0)	90(81.8)	110(100)
Igbo	0(0.0)	4(14.8)	23(85.2)	27(100)
Yoruba	0(0.0)	0(0.0)	4(50.0)	4(100)
Hausa	0(0.0)	4(50.0)	4(50.0)	8(100)
Others	19(100)	0(0.0)	0(0.0)	19(100)
Total	58(25.2)	12(5.2)	160(69.6)	230(100)
$X^2=155.399$; $df=10$; $P=0.000$				
Level Of Education				
Primary	0(0.0)	4(25.0)	12(75.0)	16(100)
Secondary	57(41.3)	8(5.8)	73(52.9)	138(100)
Tertiary	1(1.3)	0(0.0)	75(98.7)	76(100)
Total	58(25.2)	12(5.2)	160(69.6)	230(100)
$X^2=66.312$; $df=4$; $P=0.000$				

DISCUSSION

The mean age of the respondents was 35.39 years with an age range of 20-52 years. Most of the respondents were within the age group 20-30 years (45.7%). This might be due to the fact that most of the population in the study area are of the young age group. More realistically the preponderance of young persons is that this is an age group where most youths ought to be gainfully employed but the high unemployment rate has forced a lot of them to pick up motor bike riding as a source of income. It is not surprising therefore that up to 33% of them had attained tertiary education which is reflective of the prevailing unemployment for graduates in the society. This finding is also in keeping with a similar study done in Esan west local government area. (Ovienria *et al.*, 2015). Majority were married (53.9%), Christians (94.8%) and Esan by tribe (47.8%). These figures are a reflection of the socio-demographic structure of the study area where most of the people are



traditionally Christians and the dominant tribe is Esan. Up to 60% of the respondents had secondary level of education. 33% had tertiary level of education and 7% had primary level of education. Paradoxically, those with tertiary level of education had the highest (75%) potential for alcohol abuse (Table 6). It goes to show that our educational institutions might not be doing enough in moral upbringing of the thousands that pass through the campuses. It could also be a reflection of frustration and psychological depression setting in because the youths are not finding other gainful employment opportunities of their dream.

The potential for alcohol abuse by bike riders in this study was high (69.55% of respondents). A previous study a year ago, also had a similar result (Ovienria, *et al.*, 2015) as 85.30% of bike riders then in Ekpoma regularly consumed alcohol. This trend constitute a potential risk factor for road traffic accident even though there was no statistical significance in the relationship ($P=0.345$). However this was slightly different from the study done in Oyo State in 2012 by Ogunmodede *et al.* where it was reported that 49.3% of the motorcyclists interviewed ingested alcohol while 50.7% did not. Differences in culture and socio-demographic characteristics of respondents in the two studies which were in two different geopolitical zones, may account for the slight variation.

Using the Snellen's visual acuity chart, visual assessment of the right eye of respondents revealed that 68.3% of them had good vision, 25.2% had visual impairment and 6.5% had severe visual impairment. Hence there's a low incidence of visual impairment. Visual assessment of the left eye showed that 71.3% had good vision, 26.5% has visual impairment while 2.2% has severe visual impairment. This showed that okada riders with visual impairment were significantly less than those with good vision. This is to be expected as most of the respondents were of the young age group hence less likely to develop ocular diseases compared to the older age group. This however is contrasting to the study done a year ago (Ovienria *et al.*, 2015) where the study revealed that most of the respondents had poor/ bad visual acuity (69.30%).²⁸ A plausible explanation could be that an awareness created by the 2015 study would have yielded a positive impact due to medical attention sought and received thereafter by motorbike riders. This will be a good development for Public health, if research findings are beginning to have a quicker response and application in the concerned population. Hence the more reason, while a yearly assessment of visual acuity among motor bike riders in this cohort may be advocated at least to monitor the trend.

The prevalence of road traffic accident was assessed among respondents. 51.3% had history of road traffic accident in the preceding 1 year. Of these, 23% had accident once and 28.3% had accidents up to two times. Those with no history of road traffic accidents were 47.9%. These findings are not totally dissimilar to a study in same setting referred to above (Ovienria *et al.*, 2015) where they found that 47.30% of respondents had road traffic accidents, while 52.70% did not.²⁸ Again there appears to be a trend pointing to a high prevalence of road traffic accidents in Ekpoma. It is a trend that should not be ignored by concerned authorities including members of the Federal Road Safety Commission that have the statutory responsibility to enforce adherence to safety regulations by all motorists. Regulators of the motor bike parks at the local government level must rise above collection of dues to taking more proactive steps to curb the excesses of motor bike riders. One way is to ensure that licenses to operate are given to those that have been found to conform maximally to safety rules and regulations. Alcohol abuse and evidence of a poor or deteriorating vision should not be compromised in the granting of permission to operate motorbikes that carry commuters.

The relationship between road traffic accidents and the potential for alcohol abuse was assessed and it revealed that 21.6% of those with no potential for alcohol abuse were involved in road traffic accidents, 2% of those with borderline potential for alcohol abuse had road traffic accidents while the majority of those involved in road traffic accidents were those with potential for alcohol abuse, which is expected. Though the association was not statistically significant in this study ($P = 0.345$) it was significant a year ago with $P < 0.05$ (Ovienria *et al.*, 2015). Present finding might be a reminder to note that apart from alcohol abuse, other major players such as visual acuity, chronic illness, smoking or non adherence to road safety rules are also major contributors to the high incidence of road traffic accidents. In this study, there was a correlation between visual acuity of respondents and road traffic accidents as shown in the findings. Those with unimpaired vision on the left eye (86.6%) were not involved in road traffic accidents while 85% of those with visual impairment were involved in road traffic accidents. Similarly for the right eye, 87.2% of those with unimpaired vision were not involved in accidents while 12.8% were, and 74.3% of those with visual impairment had history of road accidents. These associations were statistically significant ($P= 0.000$). This serves to reinforce the need for regular eye check for motor bike riders by simple non invasive means as the Snellens chart for visual acuity. Those with impairment must be disallowed from continuing in that job for the sake of their own lives and other innocent Nigerians.



CONCLUSION

There's a high rate of alcohol consumption among okada riders in Ekpoma which predisposes them to a potential for abusing alcohol. This in turn could affect their ability to carry out their duties both at home and work. The visual acuity range for okada riders is very good for both the right and left eyes. This may play a role in reducing the prevalence of road traffic accidents. The prevalence of road traffic accidents on the other hand was very high. Being a major means of transportation in Ekpoma, this poses a significant public health risk to both the okada rider and his passenger. This in effect, increases health burden on the family and society at large. A strong correlation was identified between visual impairment and the prevalence of road traffic accident. Hence poor vision may have contributed to this high rate of accidents among this group of individuals. The correlation between alcohol consumption and accidents among this group of people was weak, though those involved in accidents with potential for alcohol abuse, were marginally higher than those without potential for alcohol abuse. In essence, many factors may contribute to road traffic accidents among okada riders in Ekpoma. This therefore demands that more studies be done to enumerate these factors and recommendations made to curb this menace.

RECOMMENDATIONS

Concerted efforts must be made by the concerned arm of government especially at LGA level to identify commercial okada riders who ingest alcohol while working and strict implementation of sanctions by the Federal Road Safety Corps (FRSC). This may involve the use of alcohol breathalyzer test. Ophthalmologic examination should be carried out for all okada riders before they are licensed and should also be done routinely. Public awareness programmes should be carried out routinely by the health sectors on the dangers of excessive alcohol consumption and Alcohol Anonymous (AA) meetings be created for rehabilitation of those with potential for alcohol abuse. Okada riders should endeavour as much as possible to present frequently for eye check up especially those with features of visual impairment. Those with inability to see at night should stop riding their motorcycles at night. Proper town planning, provision of good roads and proper screening before licensing should be taken up by the government in order to reduce the prevalence of road traffic accidents on Nigerian roads.

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AUTHORS CONTRIBUTIONS

All the authors involved in this study participated in the design, data collection and analysis, as well as the subsequent drafting and review of the manuscript.

Disclosure

There is no conflict of interest declared in this study.

