



## ALCOHOL USE AND LOCUS OF CONTROL AS PREDICTORS OF ACCIDENT PRONENESS AMONG COMMERCIAL MOTORCYCLE RIDERS IN ABEOKUTA

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### ABSTRACT

The occurrence of road traffic accidents and severe crash injuries involving commercial motorcyclist has risen significantly in recent times in Nigeria. Human factors, vehicular conditions and the state of Nigerian roads are some of the reasons that have been adduced for this increase. Therefore this study examines alcohol use and locus of control as predictors of accident proneness among commercial motorcycle riders in Abeokuta, Nigeria. Cross-sectional research design was utilized. One hundred and fifty-three commercial motorcycle riders were accidentally sampled at motorcycle parks in Abeokuta. A structured questionnaire which focused on alcohol use scale, locus of control scale and accident proneness was administered to each respondent. T-test for independent samples and multiple regressions, were used at  $p \leq 0.05$ . The results revealed that alcohol use predicted accident proneness ( $t(151) = 4.134$ ). Participants with external locus of control are more prone to accident ( $t(151) = 2.271$ ). There was joint influence of demographic variables on accident proneness [ $R = .295$ ,  $R^2 = 0.87$ ;  $F(4, 148) = 3.22$ ]. Alcohol use and locus of control were important in accident proneness. There is need for psycho-educational talk on risk of alcohol consumption and frequent personality assessment among motorcycle riders.

### INTRODUCTION

In the last ten years, there has been an increase in the use of motorcycles popularly referred to as *Okada* here in the South-western part of Nigeria and *Yan achaba* in the Northern parts of the country for commercial public transportation in rural and urban areas. Commercial motorcycling has also served as a means of gainful employment to quite a number of people due to the increase in the rate of unemployment. The emergence of commercial motorcycles is due to inadequacies of mass transportation systems in the country. Bad roads with the associated traffic congestion, as well as the ability of these motorcyclists to meander through traffic jams have encouraged the patronage of this mode of transportation. The other means of transportation are unable to access these roads. The motorcyclist spends more than 10 hours daily on the road with direct exposure to various environmental hazards including road traffic accidents and associated crash injuries of various levels of severity. The rate of road traffic accidents associated with commercial motorcycling has also been on the increase with a rise in the number of injuries presented at hospitals. The injuries come with associated huge socio-economic consequences to the injured, their families and the society at large.

Many reasons have been suggested for the unacceptably high rate of road traffic accidents involving commercial motorcyclists. The reasons range from human factors and vehicular conditions to the state of Nigerian roads (Ngim & Udosen, 2007). Road traffic accidents (RTAs) are major causes of morbidity and mortality the world over. The WHO fact sheet shows that about 1.3 million people die each year as a result of road traffic crashes (Etukumana Onumbu, John & Valenti, 2010). Road traffic injuries is the leading cause of death among young people, aged 15–29 years (Avistisides et al (2009). About 90% of the world's fatalities on the roads occur in low-income and middle-income countries, even though these countries have less than half of the world's vehicles (Etukumana et al 2010). Nearly half (46%) of those dying on the world's roads are "vulnerable road users": pedestrians, cyclists and motorcyclists (World Health Organization. Fact sheet, 2012). Without action, road traffic crashes are predicted to result in the deaths of around 1.9 million people annually by 2020. Only 15% of countries have comprehensive laws relating to five key risk factors: speeding, drinking and driving, and the use of motorcycle helmets, seat-belts and child restraints. The risk of death is twenty times higher in motorcyclists than car occupants (European Union, Road Safety knowledge base, 2012).



In Nigeria, more than two thirds of all road traffic crashes involve commercial motorcyclists. They are responsible for a substantial proportion of the fatalities. Ngim & Udosen (2007) recognized excessive speed resulting from impatience in order to make higher returns as a major risk factor for accidents among commercial motorcyclists. Other factors are disregard for other road users; poorly maintained motorcycles; bad roads; and lack of knowledge of basic traffic regulations. Unhealthy social habits like drunk driving and lack of helmet use indulged in by motorcyclists have also been found to be important risk factors for accidents among commercial motorcyclists.

Alcohol use according to Centers for Disease Control and Prevention (2011) is drinking more than 1 - 2 glasses of alcohol a day, while the Encyclopedia Britannica (2014) defines alcohol use as the drinking of beverages containing ethyl alcohol that are consumed largely for their physiological and psychological effects. Alcohol use refers to the repeated use of any substance that contains alcohol.

The concept of "locus of control" (LOC) is one of the most researched ideas in psychology. It refers to the notion that we view life either as something we can control or something that controls us (Rotter, 1965). We generally have either an *internal locus of control* or an **external locus of control**. It may also be possible that we operate with an internal locus of control in some areas of life, while operating from an external locus of control in other areas. Persons with an internal locus of control (LOC) believe that they have more control of their lives, what they do matters regarding safety, health, productivity or any facet of work and life. In short, they have an attitude of "personal responsibility" for the outcomes of what they do. When accidents happen or mistakes are made, they are the first to look back and see what they could have done differently. Persons with an external locus of control believe that events and circumstances control them, that what happens is a matter of fate no matter what they do. Such individuals often don't pay as close attention to procedures and safety protocols (Rotter, 1965). Consequently some research evidence support the claim that those persons who have an internal locus of control cause fewer accidents, are healthier, make better leaders and handle change more effectively than those with an external locus of control." (Holland, Geraghty and Shah, 2010)

The occurrence of road traffic accidents and severe crash injuries involving commercial motorcyclist has risen significantly in recent times in Nigeria. Human factors, vehicular conditions and the state of Nigerian roads are some of the reasons that have been adduced for this increase. In a research on Risk behaviours for road traffic accidents and severe crash injuries among commercial motorcyclists in Sagamu, South West, Nigeria (Salako, Abiodun and Sholeye, 2013) sampled three hundred commercial motorcyclists in Sagamu, South West Nigeria with the aid of structured questionnaires, the risk related behaviours of motorcyclists were studied as it relates to the occurrence of road traffic crash. All respondents were males, mostly young people, who had no formal training prior to riding. Three percent (3%) of the respondents used crash helmet whereas, 62.7% take alcohol during work hours and 34.7% smoke cigarette. It was observed that there was a high prevalence of high risk behaviour for road traffic accidents and severe crash injuries among the respondents due to a lack of safety consciousness and non-enforcement of regulations prohibiting high risk behaviours the researcher advised that concerted effort should be made to create a safety consciousness among commercial motorcyclists while ensuring strict enforcement of regulation concerning training before licensing and use of protective devices.

In a research paper by Gboyega, (2012) which focused on factors influencing high rate of commercial motorcycle accidents in Oyo State, Nigeria and how creation of awareness on how occurrence of accidents among commercial motorcyclist can be brought to a minimal level through the use of information. The researcher enlisted a total number of four hundred and fifty commercial motorcycle riders was for the study. The findings from this research work showed that demographic information has significant influence on the causes of road



accidents among commercial motorcycle riders in Nigeria. Among other factors that significantly contributed to increasing rate of commercial motorcycle accidents are over-speeding, wrong overtaking, bad roads, sudden mechanical defects, alcoholic intake etc. It was discovered also from the study that commercial motorcycle riders do not comply with Road Safety Highway Code.

Another study was carried out to determine the prevalence and pattern of RTAs among vehicular road users in Ikot Ekpene southern Nigeria by Johnson (2012). The findings of the study showed that motorcycle accidents contribute significantly to the number of road traffic accidents (RTAs) in the city. In the study a total of 200 male commercial motorcyclists participated, out of which 136 (68.0%) had been involved in RTAs since they started riding. Up to 119 (87.5%) of these were involved in accidents the year prior to the study. Eighty eight (64.7%) attributed the last accident to excessive speeding. Majority, 125 (91.9%), were not wearing helmets when the accident occurred. A total of 99 (72.8%) sustained injuries during the most recent accident, out of which 74 (74.7%) were injuries at the extremities. Speed reduction was identified by 138 (69.0%) motorcyclists as the single most important way of reducing RTAs among motorcyclists. Road traffic accidents were observed to occur more commonly amongst 96.6% of motorcyclists who drank alcohol, compared to 56% who did not, ( $p < 0.05$ ) and among 104 (80.0%) who were speeding excessively, compared to 32 (45.7%) who did not, ( $p < 0.05$ ). The researcher advised that there is need for legislation against alcohol consumption among motorcyclists during riding hours and enforcement of speed limits by government in order to reduce RTAs among motorcyclists.

In a study by Enobakhare & Ehikhamenor (2011) on the contribution of Psychological Symptoms and Lifetime Drinking to the Risk of Road Traffic Accidents using simple random sampling techniques, 101 commercial drivers from 20 motor parks in Benin City and using a 12 item version of the General Health Questionnaire GHQ12 found that 28.7% of the participants had probable psychological problems and CAGE questionnaire indicated that 11.8% of the participants had alcohol use problem (5.9% being probable and the rest being definite). Results revealed that drivers driving for up to 6 and more hours a day are more likely to be involved in accidents when compared to those driving for lesser periods. Those with less than 6 months experience on the roads were all involved in accidents. It was concluded that Short duration of driving experience and long distance driving appears to be a major factor in road traffic accidents.

In a research on Crash Risk of Alcohol Involved Driving (Blomberg, Raymond, Peck, Moskowitz, Burns & Fiorentino, 2005). A total of 2,871 crashes (Long Beach 1,419; Fort Lauderdale 1,452) yielded 4,919 crash and 10,066 control drivers (14,985 totals). In total, 93.5% of the drivers who were contacted at crash scenes participated. An additional 603 fled the scene of their crashes. One hundred and four of those hit-and-run drivers were located within two hours of the crash, and 94 (90.4%) provided breath specimens. Those who were not located or refused to participate reduced the participation rate of crash-involved drivers to 83.1% and the percentage who provided usable breath specimens to 81.3%. Non-crash drivers participated as controls at a higher rate of 97.9%. Since the data obtained in California and Florida were similar, most of the logistic regression analyses were performed for the total data set. The analyses showed elevated relative risk with increasing BAC and a strongly accelerated risk at BACs greater than 0.10%. The influence of covariates on the magnitude and shape of the curve was relatively modest. The paper further assesses the indulgence by commercial motorcyclists in behaviours that make them more prone to accidents particularly alcohol use.

Attempts were also made to answer the following questions:

i. Will alcohol use predict accident proneness among commercial motorcycle riders in Abeokuta?



- ii. What is the role of locus of control on accident proneness among commercial motorcycle riders in Abeokuta?
- iii. Will participants' age determine accident proneness among commercial motorcycle riders in Abeokuta?

## METHODS

### Design

The study was a survey that made use of cross-sectional design to examine alcohol use and locus of control on accident proneness among commercial motorcycle riders in Abeokuta Nigeria. The independent variables were considered at two levels each.

### Setting

The study took place in Abeokuta, the capital city of Ogun state, Nigeria. The town is made up of three local government areas namely Abeokuta North, Abeokuta South and Owode local governments. The setting offers the advantage of availability of commercial motorcycle 'okada' riders which were recently ban in Lagos state and moved to Abeokuta the immediate neighboring state to Lagos. The town is a sprawling city with population of about two million people and a tourist city which is famous for Olumo rocks.

### Participants

The participants comprised of one hundred and fifty three (153) accidentally selected respondents commercial (okada) motorcycle riders operating in the afore mentioned local government areas. Their age ranges from 15-25years 24 (15.7%), 26-35years were 89 (58.2%), 36- 45 years were 35 (22.9%) and 46 years and above were 5 (3.3%). Their educational level showed that 66 (43.1%) of the respondents had primary education, 79 (51.6%) had secondary education while the remaining 8 (5.2%) had tertiary education. Marital status showed that 102 (66.7%) of the respondents were married, 36 (23.5%) of the respondents were single, 14 (9.2%) were divorced, while 1 (.7%) was a widow. On ethnicity, 105 (68.6%) of the respondents were Yoruba, 27 (17.6%) were Igbo, 17 (11.1%) were Hausa while the remaining 4 (2.6%) of the respondents are from other tribes).

### Instruments

The study adopted the use of a 41-item structured self-report questionnaire which was divided into 4 sections: The 5-item Section A was designed to obtain participants' socio-demographic information including sex, age, educational level marital status, and ethnicity among others.

**Section B** consisted of the 10-item Accident Proneness scale developed by Connolly (1981), the ten items together has a Cronbach's Alpha = .75, Four items in the scale measure near accident and drivers' general opinion about their safety, the remaining six items measured mistakes and risk taking behaviour. Before the main study commenced the scale was revalidated and the reliability checked. The reliability of 0.84 Cronbach alpha was recorded. The split- half reliability was 0.88 Spearman- Brown co-efficient. The reliability for this study is 0.79 Cronbach's alpha.

**Section C** of the questionnaire consisted of the This section consisted of Alcohol Use Disorder Identifications Tests (AUDIT) developed by Saunders, Aasland, Babor, de le Fuente, and Grant (2006) he AUDIT is a 10-item screening instrument developed by a WHO collaborative study conducted in six countries: Australia, Kenya, Bulgaria, Norway, Mexico and the USA. It was designed to screen for a range of drinking problems and in particular for hazardous and harmful consumption of alcohol. The psychometric properties of the AUDIT have been assessed across a range of populations, including university students, women, psychiatric patients, geriatric population and unemployed people. The final 10 items from the AUDIT were selected from a



15-item interview schedule. The basis of selection was determined both through statistical analysis and face validity.

The question were selected from four conceptual domains: alcohol consumption (items 1-3), drinking behaviors related to dependence (item 4-6), adverse psychological reactions (items 7-8) and alcohol- related problems (items 9and10)A score of eight is associated with harmful or hazardous drinking. As a general guide, a score of 13 or more is likely to indicate alcohol dependence. Overall the AUDIT is a comprehensive brief screening device providing information on hazardous harmful use, abuse and dependence. Authors have reported varying alpha levels for this instrument ranging from ( $\alpha = 0.77$  to  $0.89$  this scale was also revalidated and the reliability checked. The reliability of  $0.98$  Cronbach alpha was recorded, the split half reliability was  $0.93$  Spearman Brown co-efficient

**Section D** was a 18 item scale by Levenson. H (1981).The scale which measures both internal and external locus of control has three subscales. The 8 item internality which measures internal locus of control, the powerful others and chance also have 8items respectively which both measures external locus of control. The scale which consists of a total of 24 items comes in a 6 point Likert format from strongly disagree to strongly agree and has reported a strong reliability co-efficient of  $.62$ ,  $.82$  and  $.79$  for the three subscales stated above. This makes this scale suitable for this study, however the subscales of internality and externality only was selected for use in this study.

**Procedure**

The commercial motorcycle riders i.e Okada riders were approached at different parks in each of the three local government areas mentioned above, with the help of their union leaders those of them who are willing to participate in the study were approached; the purpose, risks and benefits of the study were explained. Potential participants were assured of their confidentiality. Informed consent processes were duly followed. Willing participants were given either the battery of questionnaires to fill. The questionnaire took an average of 15 minutes to complete, some however held on to it till the next day. Of the 200 questionnaires administered, only 153 were correctly completed and returned, representing 76.5% response rate. The returned questionnaires considered adequate for data analysis were coded, stored and entered for data analysis using the SPSS 20.0 version of computer software package. Analysis of the data included descriptive statistics such as mean and standard deviation, as well as inferential statistics such as t-test for independent samples and multiple regression.

**RESULTS**

The first research question sought to find out whether participants with high level of alcohol use will score significantly higher than participants with low level of alcohol use on the measures of accident proneness. It was tested with the use of independent sample t-test.

**Table 1: Summary of t-test for independent samples showing the influence level of alcohol use on accident proneness.**

Alcohol use	N	X	SD	df	t	P
High	77	39.28	4.79	151	4.134	<.01
Low	76	35.95	5.14			

Table 1 results indicate that participants with high level of alcohol use scored significantly higher on accident proneness than participants with low level of alcohol use among commercial motorcycle i.e okada riders in Abeokuta metropolis.  $t(151)=4.134;<.01$  however, commercial motorcycle riders (okada riders) with high level of alcohol use recorded a mean of (39.28) and okada riders with low level of alcohol use recorded a mean score of (35.95). This result implies that there is a significant difference in level of alcohol use on the

measures of accident proneness among okada riders in Abeokuta metropolis. Therefore, the prediction of accident proneness by the predictor variable was not due to chance.

The second research question sought to find out whether participants with external locus of control will score significantly higher on the measures of accident proneness than those with internal locus of control. It was tested with the use of independent sample t-test.

**Table 4.2: Summary of t-test for independent samples showing the influence of internal and external locus of control on alcohol use**

Locus of control	N	X	SD	df	t	p
External	72	38.63	5.38	151	2.271	<.05
Internal	81	36.74	4.94			

Table 4.2 result shows that participants with external locus of control scored significantly higher on accident proneness than participants with internal locus of control among okada riders in Abeokuta metropolis.  $t(151) = 2.271; P < .05$ . However, okada riders with external locus of control recorded a mean of [38.63] and those with internal locus of control recorded a mean of [36.74]. The result implies that there is significant difference between external and internal locus of control among okada riders in Abeokuta metropolis. Therefore, the result confirmed the stated hypotheses and it is accepted in this study.

The third research question sought to know whether age, highest education, marital status and ethnicity will have significant independent and joint influences on accident proneness. It was tested with multiple regression.

**Table 4.3 Summary of multiple regressions showing the influence of age education, marital status and ethnicity on accident proneness**

Variable	R	R <sup>2</sup>	F	P	β	t	Sig
Age					.063	.579	<.05
Education	.295	.087	3.522	<.01	.009	.095	>.05
Marital status high					.056	.593	>.05
Ethnicity					-.291	-3.678	<.01

Dependent variable; accident proneness

The result in table 4.3 showed that age, education, marital status and ethnicity jointly predicted accident proneness among okada riders in Abeokuta metropolis.  $[R = .295. R^2 = 0.87; F (4,148) = 3.22; P < .01]$ . This implies that age, marital status and ethnicity jointly accounted for 8.7% variance in accident proneness while the remaining 91.3% could be attributed to other variables not considered in this study. However, the analysis of the independent predictions indicated that only ethnicity predicted significant independent influence on accident proneness ( $\beta = -.291; t = -3.678; P < .05$ ) among okada riders in Abeokuta metropolis. Therefore, the stated hypothesis is partially confirmed.

**Discussion**

This study was designed to investigate participants' alcohol use and locus of control as predictors of accident proneness among commercial motorcycle riders. The analyses revealed a significant difference on the level of alcohol use on accident proneness and also revealed significant difference between external and internal locus of control while age, highest educational level, marital status and ethnicity have significant joint influence on accident



proneness, Age, highest education level, marital status and ethnicity jointly predicted accident proneness also ethnicity had significant independent influence.

Overall, the results of this study established the influence of alcohol use and personality factors of locus of control on accident proneness, suggesting the need not only for a greater attention to alcohol consumption before riding commercial motorcycle, but consideration of the psychological and socio-demographic factors that determine its effects.

Participants with high level of alcohol use significantly score higher on measures of accident proneness than participants with low level of alcohol use among okada riders in Abeokuta metropolis.

The overall t-test value is found to be valid at 0.01 level of significance, p-value less than 0.01 are considered significant. The findings supported earlier study by Salako, Abiodun and Sholeye, (2013) which revealed a huge percentage of accident caused by alcohol use; their result shows that 62.7% of accident was caused by alcohol use, 34.7% by smoking cigarette

Consistent also is with the findings of Johnson (2012) in determining the prevalence and pattern of road traffic accident (RTA) among commercial motorcyclists in Ikot Ekpene southern Nigeria motorcyclists. Also supported by a research on Crash Risk of Alcohol Involved Driving (Blomberg, Raymond, Peck, Moskowitz, Burns & Fiorentino, 2005). The implication of this findings showed that majority of the commercial motorcycle riders do engage in alcohol consumption, probably to keep warm while riding the motorcycle. The habit of taking a 'short' of alcohol to keep warm has led many of them to early grave. It was also observed by the researcher that in all the Okada parks visited during this study one or more women selling alcohol do present and the commercial motorcycle riders do patronize them before embarking on their journey.

Hypotheses two, which stated that Okada riders with external locus of control will score significantly higher on the measures of accident proneness than those with internal locus of control was also confirmed. This is because the overall t-test value is found to be valid at 0.05 level of significance, p-value less than 0.05 are considered significant.

Locus of control beliefs could predict corresponding risky behavior and risk values, those who have control over their own will, place a high value on their life and are more likely to pursue healthy promoting behavior. However literature search reveals that limited studies have been conducted related to locus of control, alcohol use, accident proneness and risky behaviors.

Age, highest education, marital status and ethnicity will predict significant joint and independent influence of accident proneness among okada riders in Abeokuta metropolis. This hypothesis was partially confirmed. This is because the factorial result is found to be valid at 0.01 level of significance.  $[R = .295. R^2 = 0.87; F (4,148) = 3.22; P < .01]$ ; p-value less than 0.001 are considered significant. However, only ethnicity predicted significant independent influence on accident proneness ( $\beta = -.291; t = -3.678; P < .05$ ) among okada riders in Abeokuta metropolis. This result is consistent with the findings of Gboyega, (2012) in a study on factors influencing high rate of commercial motorcycle accidents in Oyo State, Nigeria. The findings from this research work showed that demographic information has significant influence on the causes of road accidents among commercial motorcycle riders in Abeokuta, Nigeria.

### **LIMITATION OF THE STUDY**

The limitation encountered was that many of the okada riders were uneducated as we have to explain the content of the questionnaire to them. Furthermore, language barrier was another factor because the population consisted of many ethnic groups.

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