ISSN: 3065-3630
Research Article

Journal of Clinical Nursing & Reports

# Blood Alcohol Levels, Patterns of Alcohol Consumption and Substance Abuse Among Long Distance Truck Drivers in An Urban Motor Park in Edo State, Nigeria

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**Submitted:** 28 June 2023 **Accepted:** 07 July 2023 **Published:** 12 July 2023

https://doi.org/10.63620/MKJCNR.2023.1018

***Citation:*** *Chinedu, O. K. (2023). Blood Alcohol Levels, Patterns of Alcohol Consumption and Substance Abuse Among Long Distance Truck Drivers in an Urban Motor Park in Edo State, Nigeria. J of Clin Nur Rep, 2(3), 01-09.*

***Abstract***

***Introduction***

*In Nigeria, alcohol use is common among commercial and long distance vehicle drivers. Alcohol can affect drivers' vigilance, attention, cognition, judgment, and reaction, which were related to driving ability closely. Even at low doses, alcohol significantly affects driving-related skills such as vision, braking behavior, and vigilance. This study seeks to estimate of blood alcohol levels, patterns of alcohol consumption and substance abuse among long distance truck drivers in an Urban Motor Park in Edo State, Nigeria.*

***Methods***

*A descriptive cross-sectional study design was used in conducting this study among 315 Truck long distance drivers. A systematic random sampling technique was used in selecting the respondents and alcohol use was also assessed using Alcomate ® Core Breathalyzer. Alcohol breath test < 0.5mg/dl (or 0.05% of blood alcohol) was seen as within limit (legal limit for alcohol in Nigeria), while ≥ 0.5mg/dl (or 0.05% of blood alcohol) was regarded as over the limit. Statistical Package for Scientific Solutions (SPSS) version 20.0 software was used for analysis.*

***Results***

*More than half 172 (54.6%) of drivers consumed alcohol, while less than half 143 (45.4%) of Truck drivers did not consume alcohol. 121 (70.3%) of the drivers consumed alcohol on more than four times a week, 28 (16.3%) consume alcohol 2 – 3 times weekly. Two third 114 (65.7%) of respondents consumed 1-2 bottles on a sitting (per episode), 58 (33.7%) consume 3 -5 bottles on a sitting. Majority 104 (60.5%) of the respondents consume 3- 6 units of alcohol (i.e. between 23.7grams and 47.4grams) at an episode, while 68 (39.5%) consume 9 – 15 units (i.e. between 71.1grams and 118.5grams) which is more than the recommended units of alcohol, 62 (36.0%) respondents consumed mainly beer, a higher proportion 76 (44.27%) consumed spirit 13 (7.6%) consumed Alcoholic herbal mixture, 4 (2.3%) take alcoholic concoctions. 250 (79.0%) had alcohol in their system, but 65 (20.6%) had none. About 43 (13.7%) respondents had blood alcohol levels above acceptable legal limits (> 0.05% of blood alcohol). 207 (65.7%) had alcohol above legal limits, thus unfit to drive the trucks.*

*On other substance use 144 (45.7%) used kola nut, 20 (6.3%) used Indian hemp, 70 (22.2%) use cigarettes while no respondent uses cocaine, 120 (38.1%) used drugs that were not prescribed by a doctor.*

***Conclusion***

*Drivers Union, road safety officers and transport company owners should organize a peer group cooperation, discussions and advocacy event to ensure all members avoid use of alcohol and other substances while driving. Health education and promotion program to enable sustained behavioural change in avoiding alcohol and illicit substances. They should conduct periodic alcohol breath test to screen drivers who will be allowed to embark on a trip. and to monitor driver's alcohol levels to mitigate alcohol consumption before driving.*

**Keywords:** Blood alcohol levels, Alcohol consumption, Substance abuse, Long distance Truck drivers, Urban Motor Park

## Introduction

Human safety on the road is a major concern. The need to move from one location to another is an essential component of human existence. Transporting people, food, goods, and services is also part of trade and business. Commercial truck drivers are in charge of this task. The stress and difficulties of commercial

truck driving has led to drivers finding means of adaptation to the pressures, resulting in an increase in drug-related problems and an ever-increasing trend toward the overuse and abuse of alcohol [1,2]. Studies in Nigeria have also reported common use of alcohol among commercial and long distance vehicle drivers3. In particular, 15.9% of commercial long-distance truck drivers drove while under the influence of alcohol [3].

Furthermore, more drivers consume alcohol before or while driving in order to overwork without feeling stressed, as well as hustling to earn more money in their commercial transportation business. These people are frequently engaged in car accidents. Research on the influence of alcohol on various driving skills backs up epidemiological findings relating alcohol and transportation accidents. These abilities can be classified as cognitive (such as information processing) or psychomotor (involving eye, brain-hand coordination) [4-6].

Blood Alcohol Concentration (BAC) can be measured using Breath Alcohol Level (BrAC). Breath alcohol levels is measured using breathalyzers. It helps to regulate the use of alcohol in occupation like driving and other jobs. Certain alcohol concentration in the blood streams can affect driving performance [1]. Based on various degrees of impairment in driving, countries have seen the need to set a maximum allowable BAC level as a tool for enforcement and for prevention of road traffic accidents. The most significant aspect of BAC is the numeric value attached as a legal limit [7]. In Nigeria, Blood Alcohol level can be measured using an alcohol breath test (Breath Alcohol Level). An alcohol breath test < 0.5mg/dl (or 0.05% of blood alcohol) was seen as within limit (legal limit for alcohol in Nigeria), while ≥ 0.5mg/dl (or 0.05% of blood alcohol) was regarded as over the limit [8].

Generally, some countries set their BAC at zero level; others like Albania and United States agreed on 0.1 mg/ml as the legislated BAC [1]. High level of alcohol in the body is associated with injuries at home, work and on the roads [9]. Globally, the legal limits for BAC are between 0.01% and 0.08%6 .The WHO' has recommended that countries set their Blood Alcohol Concentration (BAC) limits [10].

Alcohol consumption in Nigeria is very common among different ethnic groups. It has a long history, especially among those groups where it was not forbidden by religion [11]. It is used not only by drivers but also for recreational purposes. It is used in different traditional events, alcohol plays a significant role in the sociocultural interactions between different communities. It is used for marriage ceremonies, festivals, rituals, chieftaincy enthronements, celebration of success in life and so on. Consumption is done mainly by adult men for pleasure while females and youths were culturally restrained from drinking. Excess consumption was not a norm and intoxication attracted negative sanctions [11,12].

The World Health Organization reports a link between drivers' hazardous use of alcohol and road traffic accidents in Nigeria [5]. Approximately 50% of accidents, and its attendant consequences, on Nigerian roads are related to alcohol use [7,13].

The enforcement aspect against drunk-driving has, unfortunately, been unsuccessful as there is poor implementation of Blood Alcohol Level regulation. Accidents involving trucks can be dangerous especially those carrying petroleum products. Truck accidents may result in fires, leading to loss of properties like houses, cars of innocent's passers-by and damage to roads due to sloughing off of heated or melted bitumen. The sloughed off portions of the road readily develops into pot hole which can cause serious accidents [14].

Many countries have been working on solutions to drunk driving for a long period of time, including publicity and education and tough drunk- driving laws [15]. Alcohol can affect drivers' vigilance, attention, cognition, judgment, and reaction, which were related to driving ability closely. Alcohol consumption, even at low doses, significantly affected driving-related skills such as vision, braking behavior, and vigilance [6,16,17]. Studies found that alcohol affected simple reaction times, vigilance, visual searches, and logical reasoning [6,18]. In most developed countries, BAC checks among drivers and motorcyclists by law enforcement agents are carried out routinely and when there is a suspicion of driving under the influence of alcohol, or following a crash, this is a practice that should be done in Nigeria too.

Drivers of commercial vehicles are of peculiar interest because commercial road transport is the major means of transportation in Nigeria and drivers who use alcohol in a hazardous manner could endanger several lives. Attempts at controlling alcohol use among drivers of commercial vehicles have often failed [19,20]. This study seeks to estimate of alcohol levels, patterns of alcohol consumption and substance abuse among long distance truck drivers in Oluku Motor Park, Ovia North East Local Government, Edo State, Nigeria.

## Methodology

This study was conducted in Oluku Motor Park, Ovia North East local government, Edo State, Nigeria between February and November 2015 [21,22]. Oluku community is located along Benin – Lagos expressway. It is a stopover community for long distance truck drivers, it has a primary health centre, one government owned primary school, three private primary school, a secondary school, a market and five petrol stations. It is home to truck parks, bus parks, and parking spots for drivers and visitors. It also has hotels, brothels and a night market. The town is divided into two by the Lagos- Benin Express way which is a highway that links South-Western Nigeria to South-South and South-Eastern Nigeria.

It is part of Benin City serves as a transit area, with four major highways linking the eastern part of Nigeria to the northern part and the western part of Nigeria to the east. Truck driving is a common occupation and there are numerous Truck Road transport operators in the city carrying goods to different states in Nigeria. There over 400 Trucks drivers are registered in the park. Most of who are on a trip to other parts of Nigeria. These parks cater for regular transport of food stuff, furniture, and petroleum products to and from Benin City [23,21].

A descriptive cross-sectional study design was used in conducting this study. The study population for this study was Commercial long distance truck drivers who are registered to park at Oluku Motor Park., driving a distance above 300km and a minimum of 4 hours continuously. This study focused on the Truck drivers operating within the confines of Oluku Motor Park Union.

The minimum sample size for long distance truck drivers was calculated using the Cochran's formula for minimum sample size determination in cross-sectional stud [24]:

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

n = the desired sample size when the population is greater than 10,000

z = standard normal deviate set at 1.96 corresponding to the 95% confidence level.

In a previous study conducted in Ilorin in 2011, Nigeria, 45.1% of long-distance truck drivers were driving under the influence (DUI) of alcohol [28]. thus p= 0.451
p = 0.451
q = 1-p = 1- 0.451= 0.549
d = degree of precision desired which is set at 5 % (0.05).

Minimum sample size= $(1.96)^2 \times (0.451 \text{ X } 0.549) / (0.05)^2 = 380.5$

However since the total number of long distance truck drivers and was less than 10,000, the final sample size nf was determined using the formula [26].

$$nf = \frac{n}{1+n/N}$$

Where, nf = the desired sample size when population is less than 10,000

n = the desired sample size when population is more than 10,000

N = the estimated population size (Total number of truck drivers in Benin City doing long distance driving, derived from the sum of all long distance truck drivers in the register of Truck drivers Union.

$$nf = \frac{380.5}{1+380.5/1022} = 277.3$$

Allowing for a non response rate of 10%, i.e. (277.3 x 0.10), the minimum sample size was approximately 277.3 + 27.7 = 305.0
A total of 315 Truck long distance drivers were recruited in the study.

A systematic random sampling technique was used in selecting the respondents for this study.

Alcohol use was also assessed using Alcomate ® Core Breathalyzer, a high precision testing, with pre-calibrated sensor module [27]. This breathalyzer is extremely compact and portable and is approved by the United States DOT (Department of Transportation), National Highway Transport Safety Administration as well as the U.S FDA cleared for alcohol testing. The FRSC also recommends its use for alcohol testing.

### Blood Alcohol Concentration Measurement

The Alcomate® Core Breathalyzer a high quality machine that accurately measures blood alcohol content from an analysis of the subject's lung air was used for this study.The Alcomate® Core measures blood alcohol levels up to 0.40% in 0.01% intervals. The Core breathalyzer provides 10% accuracy at 0.10% blood alcohol concentration [27]. The Alcomate® Core makes use of an advanced MEMS microchip gas sensor technology to detect alcohol and determine the level of intoxication. Blood alcohol levels are displayed in large easy to read digits on a bright display unit (3-Digit Decimal Ultra bright LCD Display (0.00% BAC) [27].

This breathalyzer has professional level performance and features like gas sensor microchip which measures BAC% between 0.00% and 0.40%, a cumulative test counter, audio notifications, replaceable mouthpieces for sanitary use, one-way flow valve on mouthpieces and actuated deep lung-air sampling system. The alcohol sensor is oxide semiconductor, with a detection range of 0.00 ~ 0.40% BAC and sensor accuracy of +/- 0.005% BAC. It has a recovery time of approximately 1 minute between consecutive tests and uses a 1.5V AA battery. Using the disposable alcohol detector involves the following steps: attach a mouthpiece to the breathalyzer, press and release the power button, wait for the unit to warm up to optimal test conditions until the display shows "blow", blow into the mouthpiece for approximately 4 seconds. A beep indicates that blowing has started, blowing continues until the beep stops [27]. The device then analyzes the breathe sample, the test result will be displayed for approximately 15 seconds. To conduct another test, wait for the back light to turn off, after which the power botton is tapped. The breathalyzer will automatically shut off within two minutes if not in use. Other displays like "Flow" or "flo" indicate that the breath sample was not strong enough, or more likely, not long enough. Also, a display of "bat" indicates that the battery power is low [27].

Alcohol breath test < 0.5mg/dl (or 0.05% of blood alcohol) was seen as within limit (legal limit for alcohol in Nigeria), while ≥ 0.5mg/dl (or 0.05% of blood alcohol) was regarded as over the limit.

A two week training program was conducted for 10 research assistants (who were Medical officers in the University of Benin Teaching Hospital). Training covered the use and application of questionnaires on alcohol breath test for quality data collection. Questionnaires were checked to ensure that they were filled in correctly and that there are no missing data. Data from the questionnaire was coded and entered into a computer spread sheet. Questionnaires were screened for completeness, coded and entered by the researcher into the Statistical Package for Scientific Solutions (SPSS) version 20.0 software for analysis.

### Blood Alcohol Concentration

Alcohol breath test < 0.5mg/dl (or 0.05% of blood alcohol) was seen as within limit (legal limit for alcohol in Nigeria), while≥ 0.5mg/dl (or 0.05% of blood alcohol) was regarded as over the limit. Alcohol was graded in terms of standard units of alcohol of grams. One unit of alcohol = 10mls of ethanol = 7.9 grams of Alcohol.

Therefore, in the popular 600ml bottle of beer, (600ml × 5%) / 1000 = 3 units of Alcohol.

If 1 unit = 7.9grams, 3 units will contain 23.7grams of alcohol. Thus 1 bottle of beer = 23.7grams of alcohol. It is recommended that men should not consume more than of 21 units of alcohol a week, while women should not consume more than 14 units per week [28,29].

## Ethical Considerations

Ethical clearance to conduct this research was obtained from the University of Benin Teaching Hospital Research Ethics Committee. Permission to conduct this study was obtained from the National Union of Road Transport Workers (NURTW) and Truck drivers Union at Oluku Motor Park. Written informed consent was obtained from each respondent before the conduct of interviews after adequate information was given to the respondents by the interviewers. Confidentiality and privacy was respected during the course of interview. Respondents were informed that there were no penalties or loss of benefit for refusal to participate in the study or withdrawal from it. There was no risk of harm or injury to the participants during or after the study is conducted. The respondents who had health risks were counseled and referred to the nearest health facility (with their test result) for appropriate treatment and management. While, those with minor ailments were treated on the spot. At the end of the study, the researcher conducted a group health and road safety education for the drivers who participated in the study.

## Results

### A) Socio demographic characteristics of respondents

**Table 1: Socio demographic characteristics, driver experience and money earned**

| Variable | Frequency (n = 315) | Percent |
|---|---|---|
| **Age (Years)** | | |
| 31-40 | 194 | 61.6 |
| 41-50 | 88 | 27.9 |
| 51-60 | 23 | 7.3 |
| 61-70 | 10 | 3.2 |
| **Marital status** | | |
| Single | 87 | 27.6 |
| Married | 215 | 68.3 |
| Cohabiting | 6 | 1.9 |
| Separated | 5 | 1.6 |
| Divorced | 2 | 0.6 |
| **Level of education** | | |
| No formal education | 164 | 52.1 |
| Primary | 101 | 32.1 |
| Secondary | 42 | 13.3 |
| Tertiary | 8 | 2.5 |
| **Duration of driving (years)** | | |
| 0-10 | 81 | 25.7 |
| 11-20 | 152 | 48.3 |
| 21-30 | 42 | 13.3 |
| 31-40 | 28 | 8.9 |
| 41-50 | 12 | 3.8 |
| **Money earned per week** | | |
| ≤ N10,000 (≤ 28 USD) | 206 | 65.4 |
| >N 10,000 (> 28 USD) | 109 | 34.6 |
| * NGN 357 = 1 USD | | |

**A) Sociodemographic Characteristics, Driver Experience and Money Earned by Long Distance Truck Drivers**

Table 1 shows that most respondents 194 (61.6) were between the ages of 31 years to 40 years. Majority of respondents 215 (68.3%) were married, 87 (27.6%) were single and 2 (0.6%) were divorced. More than half 164 (52.1%) had no formal education, 101 (32.1% ) had primary education, 42 (13.3%) secondary school education, while 8 (2.5%) had tertiary education. Majority of the drivers 233 (74.0%) have been driving for 20 years or less while 82 (26.0%) have been driving for over 20 years. Majority 206 (65.4%) of the long distance truck drivers earn ten thousand naira or less weekly (USD 28) or less while 109 (34.6%) earn more than ten thousand naira (USD 28)

**Table 2: Respondents' alcohol use and patterns of use**

| Variable | Frequency | Percent |
|---|---|---|
| **Alcohol Use (n = 315)** | | |
| Yes | 172 | 54.6 |
| No | 143 | 45.4 |
| **Alcohol Use frequency (n = 172)** | | |
| Monthly | 9 | 5.2 |
| 2-4 times a month | 14 | 8.1 |
| 2-3 times a week | 28 | 16.3 |
| ≥ 4 times a week | 121 | 70.3 |
| **Number of Alcohol drinks per episode (n = 172)** | | |
| 1-2 | 114 | 66.3 |
| 3-5 | 58 | 33.7 |
| **Frequency of consumption of greater than six bottles in one episode( n = 172)** | | |
| Never | 113 | 65.7 |
| Less than monthly | 33 | 19.2 |
| Monthly | 17 | 9.9 |
| Weekly | 9 | 5.2 |
| **Alcohol use/ day (in Units of Alcohol) (n = 172)** | | |
| 3 – 6 Units | 104 | 60.5 |
| 9- 15 Units | 68 | 39.5 |
| **Type of alcohol consumed mainly (n = 172)** | | |
| Beer | 62 | 36.0 |
| Spirit | 76 | 44.2 |
| Wine | 17 | 9.9 |
| Alcoholic herbal medicines | 13 | 7.6 |
| Alcohol mixtures concoctions | 4 | 2.3 |
| Total | 172 | 100.0 |

**B) Patterns of Alcohol Use Among Truck Long Distance Drivers**

More than half 172 (54.6%) of drivers consumed alcohol, while less than half 143 (45.4%) of Truck drivers did not consume alcohol.

121 (70.3%) of the drivers consumed alcohol on more than four times a week, 28 (16.3%) consume alcohol 2 – 3 times weekly, 14 (8.1%) consume it 2 – 4 times per month, 9 (5.2%) of the respondents consumed alcohol monthly, Two third 114 (65.7%) of respondents consumed 1-2 bottles on a sitting (per episode), 58 (33.7%) consume 3 -5 bottles on a sitting.

Of those who take alcohol, 113 (65.7%) had never consumed greater than to six bottles of beer in a sitting, one quarter had consumed greater than six bottles in a sitting. Of these, 33 (19.2%) had consumed greater than six bottles per episode less than monthly, 17 (9.9%) had consumed greater than six bottles per episode monthly, 9 (5.2%) had consumed greater than six bottles per episode weekly.

Majority 104 (60.5%) of the respondents consume 3- 6 units of alcohol (i.e. between 23.7grams and 47.4grams) at an episode, while 68 (39.5%) consume 9–15 units (i.e. between 71.1grams and 118.5grams) which is more than the recommended units of alcohol.

Sixty two 62 (36.0%) respondents consumed mainly beer, a higher proportion 76 (44.27%) consumed spirit 13 (7.6%) consumed Alcoholic herbal mixture, 4 (2.3%) take alcoholic concoctions.

**Table 3: Drivers' Blood Alcohol Level (BAC) using breathalyzer reading**

| Alcohol level | Frequency (n = 315) | Percent |
|---|---|---|
| Alcohol absent | 65 | 20.6 |
| Present Within legal limit | 43 | 13.7 |
| Present Above legal limit** | 207 | 65.7 |
| Total | 315 | 100 |
| ** Unfit to drive | | |

Alcohol breath test < 0.5mg/dl (or 0.05% of blood alcohol) was seen as within limit (legal limit for alcohol in Nigeria)

**C) Blood Level of Alcohol Among Truck Drivers**

Of the 315 drivers surveyed, 250 (79.0%) had alcohol in their system, but 65 (20.6%) had none. About 43 (13.7%) respondents had blood alcohol levels above acceptable legal limits (> 0.05% of blood alcohol). 207 (65.7%) had alcohol above legal limits, thus unfit to drive the trucks. Alcohol breath test < 0.5mg/dl (or 0.05% of blood alcohol) was seen as within limit (legal limit for alcohol in Nigeria), while ≥ 0.5mg/dl (or 0.05% of blood alcohol) was regarded as over the limit.

**Table 4: Substance use among respondents**

| Substance use (n = 315) | Yes n (%) | No n (%) |
|---|---|---|
| Kola nut | 144 (45.7) | 171 (54.3) |
| Indian hemp | 20 (6.3) | 295 (93.7) |
| Cigarettes | 70 (22.2) | 245 (77.8) |
| Others* | 6 (1.9) | 309 (98.1) |
| Others* include gum 2 (0.6%) and snuff 4 (1.3%) | | |

**D) Substance use among respondents**

One hundred and forty four (45.7%) used kola nut, 20 (6.3%) of the respondents used Indian hemp, 70 (22.2%) use cigarettes while no respondent uses cocaine. One hundred and twenty drivers (38.1%) used drugs that were not prescribed by a doctor.

## Discussion

**A) Sociodemographic characteristics of long distance truck drivers**

About a third of respondents were between the ages of 31 years to 40 years. A similar proportion were married, a quarter were single. In contrast to findings done in Oshogbo were (71.5%) were married, and in Calabar (77.8%) [30,19]. This is an indicator that commercial driving is mainly done by men with families and driving is a source of livelihood for many middle age adults. Even though the profession is male dominated and involved days away from their families.

Education is a critical determinant of alcohol use and substance use, just about half (52.1%) of the truck drivers had no formal education, which is different from findings in Oshogbo were only 2.7% had no formal education and over 80.0% have primary education or higher [30]. In Ilorin 20.3% had no formal education [31]. In Calabar (2.2%) had no formal education and 47.9% had primary education or higher [19]. This difference may be attributable to the educational and literacy level in the different locations. With proper education . drivers will not abuse alcohol and other substances. Driving experience is important in road safety, as majority of the drivers 233 (74.0%) have been driving for 20 years or less while 82 (26.0%) have been driving for over 20 years. The higher proportion of experienced drivers will serve as strong influence over other drivers and can serve as road safety advocates to reduce alcohol consumption and substance abuse among their peers.

The location of the drivers in same socioeconomic area may be responsible for similar earnings across the country. Majority (65.4%) of the long distance truck drivers earned ten thousand naira or less weekly (USD 28) or less while more than a third (34.6%) earned more than ten thousand naira (USD 28). In Ilorin, Kwara State, Nigeria, about (35.5%) earned above N10,000 per week, while the remaining earned less than $64/week [31].

**B) Patterns of alcohol use among Truck long distance drivers**

Alcohol blood levels measurement is a useful method of alcohol level assessment. This study showed that more than half (54.6%) of drivers consumed alcohol. Similar to findings done in Oshogbo, Osun State Nigeria with a prevalence rate in the past one year was 53.6% and 43.2% for the past one month (current) [30]. Other studies show 49.8% in Ilorin (49.8%) 52.4% in Osun [31,32]. Higher proportions (84.4%) were found in Calabar [19]. Much lower proportions were found in a study done in Pakistan where 10% consumed alcohol, France where 2.7% took alcohol [33,34]. Much higher values (56%) were found in Port Alegre, Brazil [35]. These observed differences could also be due to high level alcohol monitoring in Italy and France when compared to less developed areas like Ha Nam, Ninh Binh and Bac Giang, Vietnam and Ile Ife where the findings were similar to findings in this study [36,37]. Alcohol use among drivers presents a risk o the road and a significant pubic health problem. The dangers of alcohol use is further worsened by the frequency of use of alcohol as 70.3% of the drivers consumed alcohol on more than four times a week. This is almost daily. In Ilorin, alcohol 17.3% use alcohol daily and in Ibadan 57.9% take it daily and in Calabar19 19.7% used alcoholic beverages four times or more a week [31,38].

The number of bottles consumed at a time affects the blood alcohol levels of truck drivers and their ability to drive safely. Two third (65.7%) of the drivers consumed 1-2 bottles on a sitting (per episode), 33.7% consumed, 3-5 bottles on a sitting. This is similar to a study done in Calabar where (70.3%) took one or two drinks (10-20g alcohol content) on a typical day, 60 (20.3%) took three or four drinks, 20 (6.8%) [19].

Of those who take alcohol, 65.7% had never consumed greater than to six bottles of beer in a sitting, one quarter had consumed greater than six bottles in a sitting. Similarly, majority (60.5%) of the respondents consume 3-6 units of alcohol (i.e. between 23.7grams and 47.4grams) at an episode, while 39.5% consume 9-15 units (i.e. between 71.1grams and 118.5grams) which is more than the recommended units of alcohol. This excessive form of drinking among truck drivers makes them unable to carry out their task properly. It also reduces their ability to concentrate on the wheels to avoid road crashes. Taking a look at the type of alcohol consumed by this occupational group, 36.0% consumed beer,44.3% consumed spirit, 7.6% consumed Alcoholic herbal mixture, 2.3% take alcoholic concoctions. This rising prevalence of spirit consumption among drivers has been documented [37,38]. The consumption of beverage alco-

hol globally in countless different settings cannot be disputed. This is reflected in studies described above with different proportions across different communities in Nigeria. But, it is well recognized that irresponsible drinking patterns coupled with certain behaviors as driving may bring about a. range of harmful outcomes [39].

**C) Blood level of alcohol among truck drivers**

The relationship between raised alcohol levels and crash risk is well established, and it has been estimated that driving while intoxicated contributes to 30–50% of fatal crashes, 15–35% of crashes involving injury and 10% of crashes not involving injury [40]. Of the 315 drivers surveyed, 79.0% had alcohol in their system during working hours, while 20.6% had no alcohol at all in their blood. More than two thirds (65.7%) had alcohol (breathalyzer reading) above legal limits of 0.05g/100ml, thus unfit to drive the trucks. While, 13.7% respondents had blood alcohol levels above acceptable legal limits (> 0.05% of blood alcohol). Lower proportions were found in studies done in France (21.4%), Padua , Italy (49%), Accra, Ghana (21%), Ulaanbaatar, Mongolia (34%), Ilorin (45.1%) while similar findings were observed in Vietnam (69.0%) Ile –Ife (67.2%) [41-46,37]. Much higher values (84.4%) were noted in Calabar, Enugu (88.0%), and Ife (68.9%) [47,48,10]. Increasing levels of alcohol intoxication result in increases in the risk of a motor vehicle crash. For example, with a blood alcohol concentration (BAC) of 0.05 g/100 ml, a driver is twice as likely to be involved in a fatal crash as one with no alcohol; at 0.10 g/100ml, a driver has five times the relative risk; and at 0.20g/100ml, there is a 25 times greater risk of a fatal crash [49]. In the case of commercial vehicle drivers, 'zero' BAC is mandated.

These outcomes depicts varying levels of alcohol found in the blood of truck drivers and means that anyone above the acceptable limits is not fit to drive. More efforts should therefore be made to increase education, enlightenment and regulation of alcohol use at the various motor parks or stop over points in Nigeria. Substance and stimulants are ingested by commercial drivers in an attempt to stay agile and attentive to their needs. Less than half (45.7%) used kola nut, 6.3% abused Indian hemp, 22.2% use cigarettes while no respondent uses cocaine. Over a third (38.1%) used drugs that were not prescribed by a doctor. These consumption of these substances lead to poor judgement and impairment which can lead to road traffic accidents. In a study done in New South Wales, Australia, over 21% used drugs while 46% claimed drugs is the most useful to prevent fatigue [49]. Usually the alcohol users also indulge in abuse of substances like cigarette, kola nut, cannabis and others. Alcohol and some substances use has depressant effect on the CNS and is capable of causing impairment of mental and motor functions, both of which are critical to the performance of a driver. Similarly, it affects judgment of speed, distance, and risk. It can also cause diplopia and blurring of vision. This can often lead road traffic accident (RTA), which is often very serious [45,49,51].

## Conclusion

More than half 172 (54.6%) of drivers consumed alcohol, while less than half 143 (45.4%) of Truck drivers did not consume alcohol. 121 (70.3%) of the drivers consumed alcohol on more than four times a week, 28 (16.3%) consume alcohol 2 – 3 times weekly. Two third 114 (65.7%) of respondents consumed 1-2 bottles on a sitting (per episode), 58 (33.7%) consume 3 -5 bottles on a sitting. Majority 104 (60.5%) of the respondents consume 3- 6 units of alcohol (i.e. between 23.7grams and 47.4grams) at an episode, while 68 (39.5%) consume 9 – 15 units (i.e. between 71.1grams and 118.5grams) which is more than the recommended units of alcohol, 62 (36.0%) respondents consumed mainly beer, a higher proportion 76 (44.27%) consumed spirit 13 (7.6%) consumed Alcoholic herbal mixture, 4 (2.3%) take alcoholic concoctions. 250 (79.0%) had alcohol in their system, but 65 (20.6%) had none. About 43 (13.7%) respondents had blood alcohol levels above acceptable legal limits (> 0.05% of blood alcohol). 207 (65.7%) had alcohol above legal limits, thus unfit to drive the trucks.

On other substance use 144 (45.7%) used kola nut, 20 (6.3%) used Indian hemp, 70 (22.2%) use cigarettes while no respondent uses cocaine, 120 (38.1%) used drugs that were not prescribed by a doctor.

## Recommendations

Drivers Union should have peer group cooperation, discussions and advocacy on how best to ensure all members avoid use of alcohol and other substances while driving. Health education and promotion program to enable sustained behavioural change in avoiding alcohol and illicit substances. Drivers should avoid alcohol use before and during driving by avoiding drinking spots around the parks and peer encouragement and support Conduct periodic alcohol breath test to screen drivers who will be allowed to embark on a trip. and to monitor driver's alcohol levels to mitigate alcohol consumption before driving.

Road Safety Officers and Drivers and Vehicle Licensing Authority should enforce a penalty (fines) on drivers who are confirmed to have taken alcohol or any illicit substance. They should organize rehabilitation and peer support events for drivers who have a drinking problem and change their role in the company to administrative or maintenance services. Road safety officers should carry out random blood alcohol levels tests using potable breathalyzers at specific checkpoints to reduce this problem.

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