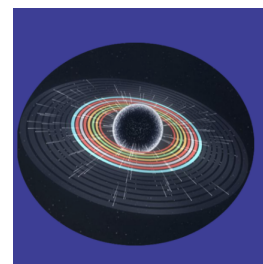


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## Original Article

# Harmful alcohol consumption and its predictors among drivers with Crash Related Trauma (CRT) in LAUTECH Teaching Hospital, Oshogbo, Osun State, Nigeria.

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## Abstract

**Background:** Alcohol impaired driving is a leading cause of Crash Related Trauma (CRT) in Nigeria. Information regarding pattern of alcohol consumption among drivers presenting CRT is scarce. This study explores the pattern of harmful alcohol consumption, its demographic correlates associated with risky driving behaviour among recuperating drivers in a tertiary hospital in Oshogbo, Nigeria.

**Methods:** The study cross-sectional study of recuperating patients presenting Crash Related Trauma (CRT) at the accident ward and the physiotherapy unit of LAUTECH Teaching Hospital, Oshogbo, Osun State, Nigeria. The recuperating drivers responded to the Risky driving behaviour scale, Alcohol disorder screening tool and socio-demographic questionnaire. Data was analysed using descriptive statistics, chi-square test, Pearson correlation and multiple regression analyses at  $p$  and  $\#8804;0.05$ .

**Results:** Findings revealed that less than half of the victims were daily drinkers and 28% were heavy drinkers. The prevalence of hazardous drinking was 37.3%. Age of driver, gender, religious affiliation and driving experience were associated with harmful alcohol intake. Gender (male sex); driving experience, high alcohol consumption rates and alcohol related problems predicted risky driving behaviour.

**Conclusion:** There is high prevalence of alcohol dependency among drivers recuperating from CRT. Drug rehabilitation for Alcoholics should be inculcated in the management of CRT victims.

**Keywords:** Harmful alcohol consumption, risky driving behaviour, injured drivers, road traffic accidents

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## Introduction

Alcohol impaired driving is a significant factor affecting both the danger of road crashes just as the seriousness of the injuries that sustained from accidents [1,3,24]. Various studies conducted on substance abuse among Nigerian drivers said to be at risk for substance use induced road crashes [1,2,3]. Alcohol remains the most widely abused substance by these drivers with the reasons that reduces the impact of stressors on driving behaviour [1,3].

Alcohol or Alcoholic substances fall among the drugs which exert their foremost effects at the mind and physiological functioning, ensuing in such outcomes as sedation, stimulation or alternation in mood or behaviour [4] and are potentially habit forming. Today, alcohol and alcohol distillates (For example Ogogoro: illicit gin), beer, wines, fortified wines and alcoholic cocktails i.e “jedijedi” (Pile mixture), “Opaenyin (Back pain elixir), alcohol bitters (Alomo, Babyoku), sachet packs of brandy and gin are openly sold at the parks despite regulations against it[3,5]. Research suggests that alcohol is responsible for 20-30% of all injuries from road crashes [3,5,12,14,15] and impaired functioning in CRT victims recuperating in hospitals [12,14,15,24]. What is unreported is the pattern of consumption habits characteristic of the injured drivers involved accidents especially in the Oshogbo metropolis with little data on alcohol related Traffic accidents. There is no prior documentation of studies pattern of alcohol consumption among drivers presenting CRT in hospital settings in Nigeria.

Factors associated with alcohol consumption also considered in the study include demographic characteristics. Ages below 35 years and adolescence; low driving experience have been documented as a risk factor for alcohol drinking and subsequent alcohol impaired driving behaviour [5,6,7, 8]. Though, much difference has not been noticed between male female drinking pattern, however gender differences have been adduced to accidents rates and risky driving behaviour [5,6,7]. This study thus aims to examine the pattern of alcohol consumption, its demographic correlates and their association to prior risky driving behaviour among injured drivers. In the light of this study, the following specific objectives were looked into:

1. Assessment of the pattern of alcohol intake among drivers who are victims of road Traffic accidents
2. Assess the relationship between characteristics of the drivers' and alcohol use.
3. Investigate the relationship between consumption pattern, socio-demographic characteristics of drivers and previous experience of risky-driving behaviour.

## Methods

The study was an ex post facto study which utilized the cross-sectional survey research approach to obtain the data. The setting is LAUTECH Teaching Hospital, Oshogbo. The facility has about 500 beds and 3000 workers comprised of include Consultant Family Physicians, Nurses, Physiotherapists, Optometrists, General Surgeon, Orthopedic surgeon. Services provided at this hospital include: outpatient, admissions, laboratory, minor and major surgeries, ultrasound scanning, pharmaceutical service and ambulance services. The hospital provides diagnostic and treatment services for people in Osun state, Oyo state and neighbouring states in south west Geo- Political region of Nigeria. The staff of the accident and emergency department comprised of Consultants, Resident doctors, Nurses while the Physiotherapy unit also has similar compositions, Apart from this, the hospital is centrally located in the state capital which is easily accessible by all motorist and every member of the public. One hundred and twenty (120) respondents were consecutively sampled from the emergency & accident ward and the physiotherapy unit. They were recruited between 1st July and 31st August, 2015. Inclusion criteria include being a driver involved in an accident, whether licensed or not, receiving medical care. Patients willing to participate in the study were interviewed and between five to ten patients were sampled daily. Excluded are patients, in the wards, who were diagnosed with problems other than being involved in car or vehicular accidents. Also excluded were accidents victims who were non-drivers or accidents victims not driving during the period of study.

The instrument used was a self-report questionnaire. Socio-demographic characteristics captured included age, gender, marital status, educational level, occupation, religion. Risky driving behaviour of drivers was measured using driving behaviour scale by Akiniyi [9] scored on a 5 point liker scale ranged from 0 (never) to 4 (frequently). The sub-dimensions of the scale measure Drunk-driving, breaking speed limit, driving during bad weather, overtaking in dangerous situations and distortive behaviour. The reliability of 0.75 cronbach's alpha and split half reliability of 0.86 co-efficient was recorded in the validation study. Alcohol use disorder was measured using Alcohol use disorder identifications tests (AUDIT) developed by Saunders, Aasland, Babor, de le Fuente, and Grant [10]. The AUDIT is a ten-object screening device used to screen for a number of alcohol consumption problems in four areas: alcohol intake (3-items (1-3), consumption behaviours associated with dependence (3-items (4-6), adverse mental reactions (2-items (7-8) and alcohol-associated issues (2-items (9-10). Scores above 8 is categories as dangerous or risky alcohol consumption. Authors have suggested varying alpha levels for this instrument ( $\alpha = 0.77-0.89$ ). Reliability co-efficient ranges between 0.77-0.89. Reliability co-efficient in the current study was put at 0.98 as well as spearman-brown co-efficient of 0.93 for split half reliability.

Ethical clearance was granted by LAUTECH Teaching Hospital Ethical Review Committee (LTH/EC/2012/11/0123B). Assistance and support were sought from the consultant and matron in-charge of the patients. Informed consent was obtained from the respondents. Consecutive sample of close to discharge who are vehicle drivers involved in road accidents until the present sample size was achieved. The respondents were selected at accident and emergency unit (for those with minor injuries), orthopedic unit, and physiotherapy unit. This questionnaire was first translated from English language version into Yoruba version so that those who were not literate amidst the respondents would have opportunity to participate in the study to ensure clarity and non-ambiguity as well as to reduce inter-observer variation interpretation during the interview. The study recorded a hundred percent response rate. All the copies of the questionnaire were adequately filled and completed.

#### Statistical Analysis:

Descriptive statistics, chi-square test for independence, Pearson correlation and multiple regression analyses were used to test the objectives of the study at 0.05 level of significance.

#### Result

The greater proportions (90%) of the respondents are males. 75% were Christians. Majority 64% of the respondents are married while 36% are single. Larger proportion (40.7) possesses secondary school certificate. 68% of the respondents reported 1-4 years driving experience. The larger proportion of 48% falls between the age group of 26-30 years and 32% are above 31 years of age (See Table 1).

Table 1: Alcohol consumption of patients (n= 118)

		Never(0)	Monthly or less(1)	2-4 times/ month(2)	2-3 times/ week(3)	4 or more times/week(4)	Total
<b>Taking a drink containing alcohol</b>	Frequency	65	16	22	10	5	118
	Percent	55.1	13.6	18.6	8.5	4.2	100
	Responses	<b>never(0)</b>	<b>1 or 2(0)</b>	<b>2-4(1)</b>	<b>5 or 6(2)</b>	<b>7-9(3)</b>	
<b>Number of drink containing alcohol on a typical day</b>	Frequency	67	13	34	4		118
	Percent	56.8	11	28.8	3.4		100
	Frequency	85	22	9	2		118
<b>Frequency of having five or more drink on any occasion</b>	Percent	72	18.6	7.6	1.7		100

Less than half of the accident victims were found to be daily drinkers. Only 28% of the respondents appeared to be binge drinkers.

Table 2: alcohol-related diagnosis of the patients based on current alcohol consumption pattern (n=118)

Alcohol Disorder	AUDIT Score	Frequency		Average Scores on dimensions of AUDIT				
				Alcohol consumption	Alcohol dependence	Adverse Psychological reaction	Alcohol related Problems	Risky driving
Low Risk	0 - 7	74	62.7	0.91	0.16	0.38	0.11	17.47
Risky or hazardous level	8 – 15	28	23.7	3.25	1.21	2.21	2.32	21.64
High-risk or harmful level	16 - 19	9	7.6	5.22	4.00	3.00	5.00	21.33
High-risk Dependence likely	20 or more	7	5.9	6.57	4.29	5.29	2.71	19.57
Total		118	100.0	2.13	0.95	1.31	1.16	18.88

Using a cut-off score of 8 for the AUDIT analysis indicated 23.7% were identified to have problematic drinking (n=28); 7.6% (n=9) have High-risk or harmful consumption levels and 5.9% had probable alcohol dependence. The prevalence of hazardous drinking was found to be 37.3% among the sample (See Table 2).

Table 3: Socio-demographic factors associated Alcohol Related Problem

		Alcohol Disorder				Value	df	Sig.
		Low Risk	Risky or hazardous level	High-risk or harmful level	High-risk Dependence likely			
Age	21 - 30 years	23 (19.5%)	10(8.5%)	2(1.7%)	3(2.5%)	23.32	9	.006
	31 - 40 years	41(34.7%)	9(7.6%)	4(3.4%)	2(1.7%)			
	41 - 50 years	10(8.5%)	5(4.2%)	3(2.5%)	0(0.0%)			
	51 - 60 years	0(0.0%)	4(3.4%)	0(0.0%)	2(1.7%)			
Gender	Male	64(54.2%)	28(23.7%)	9(7.6%)	5 (4.2%)	7.689	3	.05
	Female	10 (8.5%)	0(0.0%)	0(0.0%)	2(1.7%)			
Religion	Christianity	54 (45.8%)	21(17.8%)	6(5.1%)	7(5.9%)	41.313	6	.000
	Islam	20(16.9%)	7(5.9%)	0(0.0%)	0(0.0%)			
	Traditional	0(0.0%)	0(0.0%)	3(2.5%)	0(0.0%)			
Education	Primary	16(13.6%)	5(4.2%)	2(1.7%)	2(1.7%)	9.311	9	.409
	SSCE	32(27.1%)	11(9.3%)	3(2.5%)	2(1.7%)			
	NCE/OND	12(10.2%)	6(5.1%)	0(0.0%)	3(2.5%)			
	HND/B.Sc	14(11.9%)	6(5.1%)	4(3.4%)	0(0.0%)			
Experience	0 - 3 years	48(40.7%)	24(20.3%)	2(1.7%)	7(5.9%)	25.564 <sup>a</sup>	6	.000
	4 - 6 years	16(13.6%)	2(1.7%)	7(5.9%)	0(0.0%)			
	7 years and above	10(8.5%)	2(1.7%)	0(0.0%)	0(0.0%)			

Analysis of the relationship socio-demographic characteristics and alcohol disorder reveal that age, gender, religion and years of experience associated with alcohol disorders ( $p < .01$ ) (See Table 3). One-fourth of the patients below age 40 years reported harmful alcohol use. More respondents who claimed Christians reported alcohol disorders compared to Muslims. The greater proportion of the respondents who acquired SSCE certificate reported alcohol related disorder compared to those with primary school, NCE/OND, and HND/B.Sc qualifications. Drivers with three years of experience or less reported harmful alcohol use compare to those with more years of experience (See Table 3).

Table 4: Relationship between alcohol problems and risky driving behaviour.

	Mean	S.D	1	2	3	4	5
Risky driving behaviour	18.88	6.95	-	.264**	.247**	.215*	.344**
Alcohol consumption	2.13	2.31		-	.614**	.615**	.520**
Alcohol dependence	0.95	1.52			-	.689**	.785**
Adverse psychological Reaction	1.31	1.68				-	.597**
Alcohol related Problems	1.16	1.81					-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Relationship between alcohol related problems and risky driving was significant ( $p < .01$ ) (See Table 4). Harmful or hazardous Alcohol use was associated with increase in dangerous driving. Dimensions of alcohol disorder; high alcohol consumption, alcohol dependence and frequent psychological symptomology of alcohol use were associated with risky driving behaviour.

Table 5: Demographics and alcohol consumption as predictors of risky driving behaviour.

Predictors	$\beta$	t	Sig.
Age	0.00	0.01	0.99
Gender	-0.47	-6.58**	0.00
Years of Experience			
1 (Base outcome)			
2	-0.06	-0.78	0.44
3	-0.35	-4.46**	0.00
4	-0.34	-3.93**	0.00
5	0.00	-0.03	0.98
6	-0.05	-0.65	0.52
7	-0.17	-2.49**	0.01
8	0.05	0.77	0.44
9	-0.12	-1.56	0.12
10	-0.10	-1.26	0.21
Marital status			
Single (Base outcome)			
Married	-0.04	-0.43	0.67

Education			
No school			
SSCE	0.11	0.99	0.33
NCE/OND	-0.24	-2.31**	0.02
HND/B.Sc	-0.13	-1.27	0.21
Alcohol Consumption	0.21	2.31**	0.02
Alcohol Dependence	-0.17	-1.20	0.23
Adverse Psychological reaction	-0.01	-0.07	0.94
Alcohol Related Problems	0.36	2.85**	0.01
Constant	.	9.97	0.00

R= 0.78, R<sup>2</sup> = 0.61, F (21,111) = 8.08, p<.05 Dependent variable: risky driving behaviour.

Socio-demographic characteristics and alcohol use disorder were joint predictors driving behaviour among injured drivers (See Table 5). 61% variation in risky driving behaviour was explained by socio-demographic characteristics and alcohol use disorder. Gender (male sex); declining years of driving experience, high alcohol consumption rates and frequent alcohol related problems were associated with risky driving behaviour.

## Discussion

In our present study, less than half of the accident victims were found to be daily drinkers and 28% of the respondents appeared to always binge on alcohol. The prevalence of hazardous drinking was found to be 37.3% among the orthopedic sample there was demonstrable number of problematic alcohol drinking, and alcohol dependence. The findings are line with stream of researches which have shown that alcohol disorder is high among drivers, patients and drinking population. The findings agree with Okonoda and associates [11] who found a 9.3% prevalence rate of alcohol use disorder and 7.9% alcohol dependence among medical and surgical in-patients. In the same vein Bello and associates [12] found a high proportion (84.4%) alcohol consumption among drivers of which 23.3% were hazardous alcohol users. Recently, Lasebikan et. al. [13] found a prevalence rate of 39.5% alcohol use disorder rate among the population of 44.4% public space drinking population drinkers. The findings of this study are in concordance with literature which affirmed alcohol as a common significant risk factor associated with injurious road crashes among victims presented at emergency units of secondary and tertiary hospitals [14,15]. Both binged drinking [16] and acute alcohol intake [17,18] were associated with elevated risk of alcohol-associated injuries.

The result demonstrated that gender (male sex), having low driving experience, high alcohol consumption rates and frequent alcohol related problems were associated with risky driving behaviour. This finding is similar to Begg, Langley, Stephenson [19] who found that psychoactive substance use, drug dependence, depression, history of conduct disorder (juvenile arrest, aggressive conduct, courtroom convictions); negative adolescent driving pattern and experiences (Driving without licenses, traffic crashes); and gender predicted risky driving behaviour. This finding is similar to Taubman-Ben-ari and Yehiel [20] and Bates et al., [6] who found that drivers especially males, most times use vehicles to show-off, to draw attention or impress women, while younger women used it to achieve excitement and to show competitive braveness [6]. The findings on alcohol use demonstrated that drivers crashed whilst under the influence of alcohol in the United States [21]. In the same vein, studies demonstrated that substance-impairment may

reduce wearing of seatbelt and increase the number of passengers [22,23]. Age and education were found not to be significant determinant of risky driving behaviour among injured drivers. This finding is in contrast to the studies that have established that being age was associated with risky driving among drivers [6]. The study also contrasted studies which found that accident incidence decline with bus drivers' age [24]. The findings also support Scott-Parker and associates [23] who demonstrated that high number of self-reported road crashes and traffic offending were associated with drug-related impaired driving, over speeding, dangerous driving i.e. tailgating, avoiding Police. 43 percent of who took drugs before driving reported alcohol-impaired driving[23].

#### Conclusion and recommendations

This present inquiry has demonstrated that there is presence of alcohol related problems among a consecutive sample of orthopedic injured drivers. The study identified a pattern of harmful and dangerous alcohol use among the injured drivers. Age, gender, religion and driving experience were associated with problematic alcohol consumption among the drivers. Being a male with low educational qualification, low driving experiences with problematic alcohol consumption were associated with dangerous driving behaviour among the injured drivers. The study established a significant role of alcohol disorder in injury causing automobile accidents among the public and private drivers in the present sample. Current interventions related to alcohol and dangerous drinking behaviour is not available in orthopedic wards but there is now a need for alcohol disorder assessment and rehabilitation at the trauma and orthopedic centers. Accident and Emergency, Orthopedic and Physiology departments should be equipped to offer rehabilitation to patients suffering from alcohol related problems. Tertiary and secondary hospital facilities should be made to provide services that address screening and provision of short-term alcoholic rehabilitation to alcoholics. Apart from monitoring recovery from injury, treatment should include detoxification and psychological interventions. These can be in variety of forms which include; counselling, referral to a specialist and involvement of the social services. Counselling session with a trained psychologist or psychiatrist should be a key component for final hospital discharge in achieving full rehabilitation. Post hospital discharge and outpatients' services should be combined with an entrenched Hospital-based Alcohol restoration program that inculcate family and social support groups.

These findings should be a step towards the implementation of interventions targeting injured drivers for rehabilitation in annexing the influence of alcohol on accident rates in Nigeria.

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