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Prevalence of drinking and driving in Nigeria: a survey of Ibadan Motor Parks

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Abstract

Objective: The aim of the study was to examine socio-demographic characteristics, prevalence and risk factors of driving under influence of alcohol (DUI) and other alcohol related disorders among commercial drivers.

Method: Four hundred and twenty two subjects were drawn from a multistage sample of 616 commercial drivers from South-West Nigeria. The Composite International Diagnostic Interview (CIDI) was used to elicit the diagnosis of substance use disorder. An opinion survey was used to complement findings from the CIDI. A multivariate analysis was conducted to determine risk factors for DUI.

Results: Lifetime use of alcohol was 91.5% and current use 76.8%, lifetime prevalence of DUI was 51%, prevalence of past year road accidents was 36%. Risk factors for DUI include: hired driver (OR = 7.1, 95% CI 3.1-11.9), previous DUI accident (OR = 5.7, 95% CI 2.2-14.2), being single (OR = 3.4, 95% CI 1.09-6.7), opinion that there is no policy on DUI (OR = 3.6, 95% CI 1.9-9.3).

Conclusion: This study has reported a high prevalence of DUI among commercial drivers. These drivers put the lives of their passengers at risk and probably contributes to road accidents. Findings underscore the need for appropriate policies for accident prevention.

Keywords: *Alcohol, driving, policy, hired-drivers, accidents*

Résumé

Le but de cette étude était d'examine les caractéristiques sociodémographiques, la prévalence et les facteurs a risqué de la conduite sous l'influence de la consommation d'alcool (DUI) et autres désordres alcooliques parmi les chauffeurs commerciaux. Quatre cent vingt deux participants étaient recrutés d'un échantillon à multiple étapes de 616 chauffeurs commerciaux au sud-ouest du Nigeria

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L'interview sur les composantes de diagnostic international (CIDI) était utilisée pour comprendre le désordre causé par le diagnostic de la substance. Une surveillance d'opinion était utilisée pour compléter les résultats obtenus au diagnostic. Une analyse multi variante était faite pour déterminer les facteurs à risque du DUI. L'usage de l'alcool dans la vie était de 91.5% et un usage courante 76.8%, La prévalence de la DUI était de 51%, la prévalence de l'année passée des accidents routiers était de 36%. Les facteurs a risque de DUI inclus: chauffeur taxi course (OR = 7.1, 95% CI 3.1-11.9), accidents antérieurs de DUI (OR = 5.7, 95% CI 2.2-14.2), étant unique (OR = 3.4, 95% CI 1.09-6.7), l'opinion de manque de police (OR = 3.6, 95% CI 1.9-9.3). En conclusion cette étude a documentée une forte prévalence de DUI parmi les chauffeurs commerciaux. Ces chauffeurs mettent les vies des passagers a risque et probablement contribuent aux accidents routiers. Les résultats illuminent sur le besoin des politiques appropriées pour la prévention des accidents.

Introduction

Vehicular accident deaths are common in developing countries, where it is estimated that alcohol is present in the blood of 33-69% of drivers involved in fatal accidents [1]. Alcohol use is a strong predictor of traffic accidents, but there are few studies reporting prevalence of DUI among Nigerian drivers. Adenekan and Osibogun [2] reported an accident rate of 33.9% among commercial drivers in Ogun State of Nigeria in 1999, while an estimated 161 deaths per 10,000 vehicles was reported as at 2008 [3]. The situation has not changed, since policies against drinking and driving have not been effectively enforced by law enforcement agents.

The likelihood of arrest as a result of driving under influence of alcohol is high in various Western countries [5-9]. This may be as a result of the attention given to the problem and road traffic laws in those countries. Many factors have been reported to be associated with driving under influence in these developed societies. These include greater societal acceptance of drinking ,younger age of drinkers and, cigarette smoking [10]. Other risk factors are starting

to drink at an early age [9, 12], binge drinking [13-15], low perception of punishment [16] and being a non-alcohol dependent driver [17]. Some recent epidemiological reports suggest that alcohol use is increasing in Nigeria, the same is true of drinking among youths [18, 19]. Data from the Nigerian Survey on Mental health and Wellbeing in 2005 [20] indicate that 58% of the adult population had ever used alcohol and 14% were past year users suggesting that a substantial percentage of Nigerians use alcohol. Although, a few studies have been carried out on alcohol and drug use among commercial drivers in Nigeria [2,20], the results have been inconclusive probably because of the methodology and the inability to use structured instruments in order to yield distinct diagnoses.

Thus, the aim of this study was to determine prevalence and risk factors of DUI and DSM IV alcohol related disorders among drivers of commercial buses and cars. It was presumed that prevalence of alcohol use and DUI would be higher among hired-drivers because they are usually under pressure due to the daily financial commitments they have to the owners of the vehicles. There is also an erroneous belief that psychoactive substances enhance their performance.

Methodology

This report is a part of an Ibadan Survey on Alcohol and Drug Use among commercial drivers. Data was collected between January 2001 and July 2001 from drivers plying 4 different routes in Nigeria, namely North, East Middle, Belt and Far West –across Nigeria Border. A total of 422 subjects, were selected through a multistage sampling procedure, representing the Nigerian long distance commercial drivers.

Sampling procedure

All the 16 intercity motor parks in Ibadan were stratified into four groups A, B, C and D according to the farthest destination namely North of Nigeria, Middle Belt, East of Nigeria and far West/outside Nigeria (i.e. into neighboring countries- Benin Republic and Ghana). The criterion to be met by a driver in order to qualify as "long distance driver" was that the final destination was at least 500km from port of embankment, which was Ibadan.

A motor park was randomly selected from each of the groups by balloting. The total number of drivers was obtained from union leaders and drivers were listed by their names.

Two hundred and seventy out of 897 registered drivers in group A, 150 drivers out of 308 in group B, 151 out of 297 drivers in group C and 45 out of 197 drivers in group D demonstrated willingness to participate in the study. In all 616 drivers were recruited.

The 616 drivers were invited to participate in the study. One hundred and ninety four dropped out of the study for various reasons including ill health. Drivers in each motor park were interviewed consecutively, the first driver in each motor park was chosen by simple random sampling. Thus, 214 were interviewed from group A, 98 from group B, 98 from group C and 12 from group D respectively. In all, 422 drivers were interviewed.

Measures

Opinion survey

An opinion survey was carried out before the commencement of the interview, using some items as contained in the CIDI. The result generated an opinion score.

Thus, the qualitative data was changed to a quantitative one in order to facilitate analysis: the following statements were used during the opinion survey: "A) a driver caught by the police after drinking five or more drinks should be sent to prison; B) a driver caught by the police after drinking five or more drinks should have his license suspended; C) a driver caught by the police after drinking five or more drinks should have to pay fines".

Answers were dichotomized (positive if the answer was "in the majority of times" or "always", and negative if the answer was "never" or "in few or limited situations". Individuals with two or three positive responses on were classified as having a "favourable opinion toward the policies"; individuals with zero or one positive response were classified as "unfavourable opinion. "Favourable opinion was used" as the reference category for analyses.

Punishment

To assess how subjects perceived the possibility of punishment because of driving under influence, the following statement was used: "If a person drives after having too much to drink, it is certain that a police officer is going to stop and arrest him". Answers were dichotomized (positive if the answer was "totally agree" or "partially agree", and negative if the answer was "don't agree" or "disagree".

Socio-demographic questionnaire

This asked for information on socio-demographic characteristics such as age, sex, religion, marital status, occupation, duration of stay in the motor park, whether the driver was employed or is owner driver, first choice of alcohol beverage, and place of drinking for example (Motor park, bar, a friend's house, relatives etc).

The composite international diagnostic interview (CIDI).

The alcohol section of the Composite International Diagnostic Interview [21] was used, thereafter, a computer program, CIDI auto was used to obtain lifetime and current use diagnoses based on ICD10/DSM IV criteria. The CIDI auto is software that concurrently generates both ICD 10 and DSM IV diagnoses using various indices such as physical, psychological and social health problems.

VOL administered the CIDI and had been previously trained on its administration by (OB). This was a face-to-face interview, which lasted for an average of 43, minutes and was conducted in the respondents' motor parks.

Terminologies as defined by CIDI.

DUI was defined as driving under influence of alcohol in a situation that increased one's chances of getting hurt (Question, 19, section I).

Alcohol consumption: Respondents were asked about consumption of at least 12 drinks of any type, wine, beer or liquor in their lifetime and 12 months prior to the survey. (Question, 11) Binge drinking: binge drinking was estimated as five or more drinks on one occasion.

Ethical approval

Approval was obtained from the Ethical Review Committee of the Oyo State Ministry of Health, Ibadan and informed consent was obtained from each participant.

Analyses

Bivariate analyses were used to compare hired-drivers with owner -drivers in relation to demographic variables, age of first drink, binge drinking, alcohol abuse, alcohol dependence, single or multiple diagnoses, previous alcohol related accident. For multivariate risk analysis, variables that were significant during bivariate analysis were entered into the model of the logistic regression equation. Variables were entered in the binary form, i.e. 0, 1, and were coded in a way to illustrate the effect of each level. To facilitate the interpretation of odds ratio, a reference category was always chosen for the independent variables with which other variables could be compared. All analyses were performed with the SPSS - version 13.

Results

The sample of 422 subjects comprised of 351 (83.2%) hired-drivers and 71 (16.8%) owner- drivers whose mean age was 39.3 ± 13.6 years, median 37 years.

Table 1: Comparisons between Hired and Owner Driver

Variable	Hire-drivers(%) n = 351	Owner-drivers(%) n = 71	P
Age			
<25	-	-	<0.001
25-34	28.8	2.8	
35-44	26.2	14.1	
45-54	25.1	33.8	
>54	19.9	49.3	
Education			
No formal	4.6	7.0	
Primary complete/incomplete	39.9	52.1	
Secondary complete/incomplete	45.6	64.8	
College complete/incomplete	4.3	4.3	<0.001
Marital Status			
Currently married	71.1	90.1	
Not currently married	28.5	9.9	<0.001
Final destination			
North	58.1	15.5	
Middle belt	23.4	22.5	
East	15.4	62.0	
Far West/across border	3.1	1.4	
			<0.001
Lifetime Alcohol Use %	91.3	91.7	
Current Alcohol use %	85.8	32.4	
Driving Under Influence %	47.3	15.5	
Binge			
> 5 drinks in last 12 months	43.3	5.6	<0.001
< 3 drinks in last 12 months	69.2	15.5	<0.001
Mean age of drinking onset	16.3	16.7	1.0
Alcohol use			
Lifetime alcohol use	91.1	91.9	0.79
Current alcohol use [b]	89.5	65.1	<0.01
Single diagnosis			
Lifetime alcohol abuse	28.5	25.3	0.69
Current alcohol abuse [b.]	20.5	8.5	0.03
Lifetime alcohol dependence	11.7	7.0	0.34
Current alcohol dependence	6.0	7.0	0.58
Multiple Diagnosis			
Current alcohol abuse + any current additional substance use disorder [b*]	10.0		
Current alcohol dependence + any current additional Substance use disorder [b *]	1.1	-	-
Passenger had suspected DD**	16.7	2.8	<0.001
Alcohol related RTA in past 12 months*	36.0	-	

Recency - within 2 weeks, ** in past year; b hired drivers n = 314 owner drivers n = 10

Table 2: Risk factors associated with driving after taking five or more drinks (n = 206)[a]

Variable	Unadjusted OR 95 (CI) **	P	Adjusted OR 95% (CI) **	P	SE***95% (CI)
Age					
24 – 34	3.1 (1.4-7.4)	0.01	2.2 (1.1-4.3)	0.01	0.32(1.12-2.54)
> 54	1		1		
Marital Status					
Single	5.6 (2.1- 11.6)	<0.001	3.4 (1.09-6.7)	0.03	0.34 (0.02-1.44)
Married	1		1		
DSM alcohol abuse					
Yes	4.4 (1. 9-7.8)	<0.001	2.1(1.2-4.6)	0.06	0.45(0.03-1.43)
No	1		1		
DSM alcohol dependence					
Yes	6.3(2.9-11.4)	<0.001	2.9 (2.2-7.1)	0.03	0.52(-0.09-0.44)
No	1		1		
Binge drinking – at least once in 12 months					
Yes	4.7 (2.1-9.6)	<0.001	2.2 (1.2-6.4)	0.04	0.41 (0.07-0.38)
No					
Drivers status					
Hired	9.7(3.9-23.6)	<0.001	5.5 (3.2-14.7)	< 0.001	0.36 (-1.62-0.24)
Owner	1		1		
Mean distance covered at a stretch					
> 500 km	3.1(1.4-7.4)	0.01	2.2 (1.1-4.3)	0.01	0.32 (1.12-2.54)
≤ 500km	1		1		
Opinion score towards policies					
Unfavourable	5.7(2.2-9.8)	<0.001	2.6(1.9-7.2)	0.03	0.37 (0.03-1.50)
Favourable	1		1		
Comments from passenger about DUI					
Critical	2.7(1.2-4.4)	<0.001	1.3(0.7-3.6)	0.11	0.33(0.18-1.22)
Not critical	1		1		
Previous DUI accidents					
Yes	9.6 (3.1-26.8)	<0.001	5.7 (2.2-14.2)	< 0.001	0.34 (1.4-2.33)
No	1		1		

a only significant variables during unadjusted analyses and corresponding adjusted Odds ratio are displayed in the table

included are ** Odds Ratio 95% confidence interval, *** standard error

Owner drivers tended to be older, with higher schooling and reported lower prevalence of current alcohol abuse, current alcohol dependence or DUI (Table 1). Lifetime use of alcohol was 91.3% and 91.7%, current use 32.4% and 85.8% and prevalence of driving under influence was 47.3 and 15.5% for hire and owner drivers respectively. Table 2 shows the final model obtained through multivariate logistic regression analysis. Age of driver between 25 – 34 years, OR = 2.2, 95% CI (1.1-4.3), p = 0.01; single conjugal status (OR = 3.4, 95% CI 1.09-6.7), p = 0.03; DSM alcohol dependence, OR = 2.9, 95% CI (2.2 – 7.1), p = 0.03; binge drinking, OR = 2.2, 95% CI (1.2 – 6.4), p = 0.04; being a hired-driver (OR = 5.5, 95% CI 3.2-14.7), p = 0.001: mean distance of destination ≥ 500 Km, OR = 2.2, 95% CI (1.1- 4.3), p = 0.01; unfavourable opinion toward DUI policies, OR = 2.6 , 95% CI (1.9 – 7.2), p = 0.03; having a previous DUI accident (OR = 5.7, 95% CI 2.2-14.2), p = 0.001 remained associated with heavy drinking

and driving. Educational level, DSM alcohol abuse and critical comments from passengers about DUI were not associated with heavy drinking (Table 2).

Discussion

This study evaluated the prevalence of DUI and risk behaviours in a representative sample of commercial drivers. Findings from this study therefore should be interpreted with caution. The present study has however identified that prevalence of DUI and alcohol related disorders were significantly higher among hire-drivers and was significantly related to distance of journey covered at a stretch. The study also shows that all alcohol related road accidents occurred among the hire-drivers group.

The present survey is particularly relevant based upon reports from the Federal Road Safety Commission (FRSC) stating that deaths from motor vehicular crashes has been increasing steadily in the last decade [23, 24]. There are no studies on the relationship of alcohol and road traffic accident but

we hope the present study will shed some light on the nature of the problem and will be useful to policy makers. Majority of drivers in public transportation in Nigeria are commercial drivers and there is little information on their risk- behaviour.

Some of the risk factors identified in this study for DUI have been identified in other studies as being risk factors for substance abuse [10, 13-16]. The finding that a relatively high proportion of these hired-drivers also reported binge use of alcohol compared with the owner drivers is worrying and might be related to using alcohol to enhance performance in other to meet daily financial obligation, this obviously has implications for the passengers in these vehicles. Direct association between alcohol use and fatal road accidents cannot be objectively measured, since autopsy data are not available and blood levels of alcohol are not usually measured at the point of accidents

The prevalence of binge use obtained from the study is similar to what obtains elsewhere [17, 25]. The high prevalence of binge drinking and lifetime alcohol use disorders may not be unrelated to a relatively young mean age of drinking onset . This result supports previous findings indicating that adolescent alcohol use is an important predictor of later alcohol use [26, 27]. There seems no difference in the prevalence of lifetime and current alcohol dependence 15.3 % Vs 13.1%, supporting the notion of "alcoholism" as persistent, consistent with the literature revealing "relative chronicity" of alcohol dependence [28, 29]. Our finding that almost a fifth of the study population, 17% (table I) have current multiple psychoactive substance use disorders is a reflection of high rate of other psychoactive substances use in conjunction with alcohol which is also consistent with previous studies [30-32].

An important risk factor for binge alcohol use as reported in this study is miles or kilometers of road driven at a stretch, which is a risk factor for road accidents as reported in previous studies [2, 33].

After controlling for age, drivers with alcohol abuse were twice more likely to drive after taking five or more drinks, while those with alcohol dependence were almost three times more likely to drive after taking five or more drinks. In addition, drivers with history of alcohol related road accidents were almost six times more likely to drive after taking five or more drinks. This is an important public health issue in a country where health facilities are limited and the situation may be similar in many other African countries.

According to table 2, being unfavourable of enforcement and strict policies was a risk factor for driving after taking five or more drinks, a finding that had been previously reported [34]. This suggests the need for substance use/abuse educational programme targeted at this high risk group.

The result of our study would suggest a need for random toxicological tests on commercial drivers in order to ensure the safety of their passengers.

Strength and limitations
One of the strengths of this study is the fact that a structured interview was used to elicit symptoms and make diagnosis. Previously the validity of the alcohol and drug section of the CIDI has been determined in Ibadan as part of a WHO study on alcohol and drugs (Ustun *et al* [36]. However, we are aware that data generated by the present study could have been an underestimate because there is always the possibility of underreporting when alcohol/drug consumption is obtained from face-to-face interviews with individuals. This has posed a limitation to the study. We also did not include the different motor parks in the logistic regression equation, thus it was not possible for the effect of each study motor park on binge use.

Acknowledgment

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