Original Article

Prevalence and Pattern of Stimulants Use among Long-distance Truck Drivers in a Truck Part in Kaduna State, Nigeria

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Abstract

Background: Stimulant use is recognized as an important factor in road safety worldwide, and concerns are growing over the incidence of road traffic accidents among drivers who drive under the influence of stimulants. Yearly, more than 1.25 million people lose their lives as a result of road traffic accidents, many of which are associated with stimulant use. **Aim:** The study aimed to assess the prevalence, pattern, and factors associated with stimulant use among long-distance truck drivers in a truck part in Kaduna State, Nigeria. **Methods:** A cross-sectional study was conducted in a truck park in Marraraban Jos in Kaduna State. A structured, interviewer-administered questionnaire was used to obtain data. A total of 152 respondents were interviewed. Data were analyzed using SPSS version 20. Chi-square and Fisher's exact tests were used to identify the relationship between categorical variables with a level of significance at $P < 0.05$. **Results:** A total of 152 respondents participated in the study with a mean age of 33 ± 5 years. The prevalence of stimulant use was 64.5%. Only 92 (60.7%) drivers reported using stimulants on rare occasions. Years of driving experience was found to be associated with stimulant use ($P = 0.031$). Other sociodemographic variables were shown not to be significantly related to stimulant use. **Conclusion:** The prevalence of stimulant use was found to be high among the drivers, with less experienced drivers more likely to use stimulants. Efforts on improving road safety should include reducing stimulant use, especially among the younger less experienced drivers.

Keywords: Jos, long-distance drivers, Nigeria, stimulants

Introduction

Stimulants are agents that excite the nervous system and speed up physical and mental function.[1]

They are mostly chemical agents and induce temporary improvement in mental and physical function, enhancing alertness, wakefulness, and locomotion.[2] Legal stimulants are substances such as caffeine, nicotine, energy drinks, and prescription amphetamines, while illegal stimulants include substances such as cocaine, ecstasy, and methamphetamines.[3,4]

Stimulant use has been recognized as important factors in road accidents in the world. Commonly used stimulants among long-distance drivers include amphetamines, methamphetamines, caffeine, nonsteroidal anti-inflammatory drugs, morphine, and ecstasy.[4] Studies show that drivers who use stimulants are overrepresented in road crashes compared to nonusers.[4] Stimulant use among the drivers is enhanced by the fact that long-distance truck drivers rate them as the most effective means of managing fatigue and keeping awake during journeys.[4]

While it is argued that stimulants may be an effective strategy for long-distance drivers as they overcome the effects of fatigue, there are several arguments against permitting their use in the industry; their use may have adverse effects on safe driving by increasing risky behavior.[4] There are also concerns that the effects of withdrawal from stimulants may have adverse effects on safe driving. Evidence also shows that drivers who took stimulants are more likely culpable drivers.[5] Other adverse health effects from long-term stimulant

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use include cardiovascular disease, renal complications, dependence, appetite suppression, memory dysfunction, and social and economic burden.[4]

Concerns are growing over the incidence of road traffic accidents among drivers who drive under the influence of stimulants. Each year, more than 1.25 million people lose their life as a result of road traffic accidents, of which so many of such events were associated with stimulant use.[6] Stimulant use while driving is illegal, but clearly, this is not sufficient to deter significant minority drivers. Rather attempts to reduce stimulant use in the long-distance industry should focus on the reasons drivers take stimulants and find them helpful in managing fatigue.

There is a relative dearth of information on the factors associated with stimulant use among long-distance truck drivers in Nigeria.[6,7] The knowledge of the use of stimulants and the pattern of use by the drivers is important in interventions for reducing stimulant use and ensuring road safety.[8]

This study, therefore, seeks to determine the prevalence and pattern of stimulant use among long-distance truck drivers in a truck park in Northwestern Nigeria.

Materials and Methods

Study area

Marraraban Jos is a settlement located in Igabi Local Government Area of Kaduna state. It is 60 km away from Zaria and 5 km to Kaduna city. It has a population of about 8000 people. Mararraban Jos serves as a stop station for long-distance drivers for about three decades, now especially truck and tanker drivers owing to its location, and sociocultural and economic activities. Chemists and drug shops abound in Mararraban Jos as well as an abundance of drugs and stimulant hawkers. Channel of communication is through mass media channels like radio and television owing to its proximity to Kaduna city.

Study design

It is a descriptive cross-sectional study.

Study population

The study population consisted of long-distance truck drivers in a truck park in Mararraban Jos.

Inclusion criteria

All long-distance truck drivers who have registered in the truck parkin Mararraban Jos was included in the study.

Exclusion criteria

Registered truck drivers in the park who do not have vehicles to drive as at the time of the study and those who were out of the station were excluded from the study.[9,10]

Sample size determination

A minimum sample size of 152 was determined using the Fisher's formula for cross-sectional study,[11] using a stimulant use prevalence of 21% from a similar study.[5]

The minimum sample size will be determined using the formula:

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

Where n = minimum sample size

z = standard normal deviation = 1.96

d = degree of accuracy equal to 5% which corresponds to $d = 0.05$

$P = 0.21$, prevalence of drivers using stimulants[5]

q = 1 − p, complementary probability

=1 − 0.21 = 0.79

Therefore,

$$n = \frac{1.96^2 \times 0.21 \times 0.79}{0.05^2}$$

=254.92 = 255

Finite population correction is done since the calculated minimum sample size is >5% of the total population of registered drivers in the park (302 total drivers registered in the park).

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

N = Total population of long-distance drivers in Mararraban Jos = 302 (registered drivers).

$$nf = \frac{255}{1 + (255/302)}$$

=138.2

=138

10% of this number is added for attrition

That is 138 + 13.8 = 151.8

=152 final sample size.

Sampling technique

All consecutive consenting long-distance drivers who met the inclusion criteria were interviewed until the sample size was reached.

Data collection

A structured close-ended interviewer-administered questionnaire was adopted from a study on a survey of long-distance drivers in New South Wales, Australia, and used to obtain information and data relevant to the study objective.[8] The questions were grouped into sections to gather information on the sociodemographic profile, stimulant use, the pattern of use, and factors associated with the use of stimulants among the respondents.

Data management and analysis

Data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 20 (IBM Corp., Armonk, N.Y., USA) after data were cleaned and coded. Univariate analysis was done for sociodemographic variables. The association between sociodemographic variables such as age, marital status, income, form of employment, driving experience, level of education of respondents, and other factors influencing stimulant use was checked. The level of significance of all statistical associations was set at $P < 0.05$. The results were presented using frequency tables and prose.

Ethical approval

Ethical approval was obtained from the Ethics and Research Committee, Kaduna State Ministry of Health. Permission was obtained from the National Union of Truck Drivers and the National Union of Road Transport Workers in Mararraban Jos. Informed consent was obtained from each respondent, explaining the aims and objectives of the project. Confidentiality was ensured for all the respondents. Respondents were given the choice of opting out of the study at any time. Data collected were stored in a password-protected computer. Only the researchers had access to the computer.

Results

A total of 152 respondents participated in the study. The mean age of the respondents was 33 ± 5 years. Majority, 80 (52.6%), of the respondents, belonged to the age group of 40–50 years. All the respondents were male. Majority, 103 (68%), of the respondents, were of the Hausa ethnic group and most of them are married (71%). The majority, 128 (84.2%), of the respondents were employee drivers, with 99 (65.1%) of them having 5–10 years of driving experience. The drivers are predominantly paid every month 132 (86.8%), with 80 (52.6%) of them earning <20,000 naira monthly [Table 1].

The study shows that 98 (64.5%) respondents currently use stimulants, with the majority of them (48.7%) using traditional stimulants or beverages. Desire to keep awake was reported by 40 (40.8%) users as a reason for stimulant use, while 26 (26.5%) reported using stimulants to relief fatigue [Table 2].

The pattern of stimulant use shows that 59 (60.7%) stimulant users reported using stimulants on rare occasions, while 12 (12.7%) reported using stimulants on all trips [Figure 1].

The study shows that age, hours of work per day, mode of payment, income, and employment status of the respondents are not significantly related to stimulant use. However, years of driving experience by the respondents was found to be significantly related to stimulant use [Table 3].

Table 1: Sociodemographic characteristics of the respondents

Variable	Frequency (n=152), n (%)
Age group (years)	
<40	38 (25)
40-50	80 (52.6)
>50	34 (22.4)
Marital status	
Single	25 (16.4)
Married	108 (71.1)
Divorced	19 (12.5)
Level of education	
No formal education	70 (46.1)
Primary	47 (30.9)
Secondary and above	35 (23)
Tribe	
Hausa	103 (67.8)
Igbo	4 (2.6)
Yoruba	24 (15.8)
Others	21 (13.8)
Religion	
Islam	114 (75.0)
Christianity	38 (25.0)
Employment status	
Employee driver	128 (84.2)
Owner-driver	22 (14.5)
Owner-operator	2 (1.3)
Years driving	
<5	21 (13.8)
5-10	99 (65.1)
>10	32 (21.1)
Mode of payment	
Weekly rate	7 (4.6)
Monthly rate	132 (86.8)
Others	13 (8.6)
Monthly income (Naira)	
<20,000	80 (52.6)
20,000-30,000	54 (35.5)
>30,000	18 (11.8)
Hours of work per day	
<5	4 (2.6)
5-10	62 (40.8)
>10	86 (56.6)

Discussion

The study reveals the prevalence of stimulant use among the drivers to be 64.5%; this finding is similar to a study in Nigeria among long-distance drivers which reveals a prevalence rate of 76%.[10] The similarity could be because of the similar sociodemographic characteristics of the respondents in both studies, haven both been conducted in Northern Nigeria. Our findings are however in contrast with two similar studies in Australia which reported prevalence rates of 20% and 21%, respectively.[9,11] The difference in prevalence could be due to the relative availability of traditional and herbal stimulants in Northern Nigeria whose sale is often unregulated. The use of stimulants by long□distance drivers has the ability to impair cognitive functions of a driver[12,13] and reduces his/her sense of judgment,[14,15] and it also affects the perception and interpretation of bad driving which could lead to the occurrence of road traffic accidents.[16,17] The high prevalence thus indicates higher risks of cognitive Dysfunction[18] and crashes.[17,19]

Table 2: Prevalence, types, and reasons for stimulant use

Variable	Frequency (%)
Currently used stimulants	
Yes	98 (64.5)
No	54 (35.5)
Types of stimulant use	
Over-the-counter	28 (28.6)
Traditional/beverages	47 (49.9)
Illegal drugs	9 (9.1)
Others	14 (14.5)
Reason for the use of stimulants	
To relief fatigue	26 (26.5)
To keep awake	40 (40.8)
Both	32 (32.7)

Table 3: Factors influencing stimulant use by the respondents

Variable	Use stimulants, frequency, *n* (%)		Test statistics/*P*
	Yes (*n*=98)	No (*n*=54)	
Age group (years)			
<40	22 (57.9)	16 (42.1)	χ^2=2.211, *P*=0.871
40-50	49 (61.2)	31 (38.8)	
>50	27 (79.4)	7 (20.6)	
Hours of work per day			
<5	4 (100)	0	Fischer' exact=2.380, *P*=0.841
5-10	39 (62.9)	23 (37.1)	
>10	55 (63.9)	31 (36.1)	
Mode of payment			
Weekly	2 (28.6)	5 (71.4)	Fischer' exact=5.131, *P*=0.69
Monthly	86 (65.2)	46 (34.8)	
Others	10 (76.9)	3 (23.1)	
Income per month			
<20,000	49 (80)	31 (20)	χ^2=1.757, *P*=0.061
20,000-30,000	35 (64.8)	19 (35.2)	
>30,000	14 (77.8)	4 (22.2)	
Employment status			
Employee driver	83 (64.8)	45 (35.2)	Fischer' exact=1.388, *P*=0.798
Owner-operator	2 (100)	0	
Owner-driver	13 (59.1)	9 (40.9)	
Years of driving experience			χ^2=0.360, *P*=0.031
<5	14 (66.7)	7 (33.3)	
5-10	65 (65.6)	34 (34.3)	
>10	19 (59.3)	13 (40.7)	

Traditional stimulants or beverages are the most common stimulants used by the drivers; 47.9% of users reported using them. In contrast, a study in Sokoto State, Nigeria, reported that only 27% of stimulant users among long-distance drivers reported using traditional/beverage stimulants.[20] Another contrasting finding reported amphetamines as the most common stimulants used by 67% of long-distance truck drivers.[4] Amphetamines are very often scarce in Nigeria

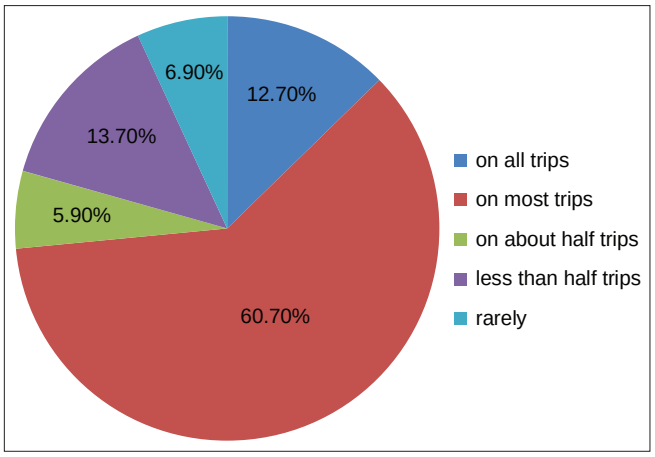

Figure 1: Pattern of stimulant use among the long-distance truck drivers

and very expensive when available, thus their less use by the drivers in this study. The poorly regulated market for traditional medicines in Nigeria will pose a challenge to the control of stimulant use by the long-distance drivers as majority of them reported using traditional stimulants and beverages.

Desire to keep awake was the main reason for stimulant use as reported by 40.8% of the stimulant users. A similar study reported that 53% of stimulant users among the long-distance drivers do so to keep awake during journeys.[11] Our findings are however contrast that of a similar study in which majority of the stimulant users do so to manage fatigue.[21] Many long-distance drivers in Nigeria make multiple trips per week on their usual route, and night driving is also common among them, hence the desire to keep awake during trips.[20]

Majority of the drivers who use stimulants (67%) reported using them on most trips, contrary to findings in a similar study which reported 50% stimulant users reported using them on at least half of their trips.[12] The stimulant drugs have the potency to cause addiction among their users and hence majority of users reporting doing so on most trips.[21] Persistent use of stimulants affects functioning of the brain by delaying cognitive and executive functions which may lead to impaired driving. These can have a relevant impact on truck driver's health as well as on work safety, increasing the risk of injuries and traffic accidents.[22]

This study found a significant relationship between stimulant use and years of driving experience; this agrees with a similar study which reported that drivers with drug use were less experienced in the long-distance road transport industry.[9] A study in Turkey also found that stimulant use is significantly associated with time spent in the profession.[16] In the long-distance road transport industry, drivers who remain in the industry for long periods may be better adapted to the rigors of the job, including long and irregular work hours, and consequently may not take drugs.[21]

The study shows that stimulant use is not significantly related to age, hours of work per day, mode of payment, income, and

type of employment. A similar finding reported that stimulant use is not significantly related to age and education. The finding in this study is however contrary to other studies which found that drivers with stimulant use experience were younger[8-10] and that the busiest drivers are more likely to use stimulants.[9] Other studies found that stimulant use was significantly related to the duration of work.[9,8,13,14] The difference may be explained by the fact that in this study, majority of the drivers are paid on a monthly basis not based on output, hence not under as much pressure to deliver. Furthermore, a contrary finding by Melisa Cooley shows that drivers who are paid on payment by result or rate per trip basis are 2–3 times more likely to report taking stimulants while driving than drivers paid on a time basis, and that movnthly income significantly affects stimulant use.[9,8] Similar studies have also shown that low-income earners are more likely to use stimulant drugs contrary to what was found in this study.[9,14,15] A study by Ann W which shows that owner-operators are less likely to use stimulants than employee drivers contrary to this study which found no relationship between employment type and stimulant use.[11]

Conclusion

The prevalence of stimulant use among the long-distance truck drivers were found to be high, with less experienced drivers more likely to use stimulants. Other sociodemographic variables were shown not to be significantly associated with stimulant use.

Efforts on improving road safety should include reducing stimulant use, especially among the less experienced drivers.

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Conflicts of interest

There are no conflicts of interest.

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