

Research Article

Profile of Problems and Risk Factors Associated with Tobacco Consumption among Professional Drivers in Nigeria

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Commercial drivers in Nigeria use tobacco while driving thereby making them vulnerable to developing nicotine dependence. The aim of this study was to describe the profile of problems and identify risk factors associated with tobacco dependence among these drivers. The study design utilized a multistage sampling method to interview 851 consenting subjects using the drug section of the Composite International Diagnostic Interview (CIDI). Mean age of smoking initiation was 15.4 ± 2.4 years. Current prevalence rate of using a tobacco product was 354 (41.6%). Health problems were the commonest profile of problems (39.6%) associated with nicotine dependence. Risk factors associated with nicotine dependence included cigarette smoking and cigarette/snuff combination, with $P = 0.01$, respectively. In conclusion, commercial drivers require health educational awareness program about harmful consequences of tobacco and the government needs to enforce no-use tobacco policies within vehicles. The implementation of tobacco cessation programs for those with tobacco-related disorders will also be helpful.

1. Introduction

Tobacco use is a global public health issue and a leading preventable cause of premature morbidity, mortality, and disability [1]. It is estimated that 4.9 million tobacco-related deaths occur annually, a figure that is expected to rise to about 10 million by the year 2020. With the current epidemic, it is expected that more than 70% of these deaths will occur in developing countries [2].

The World Health Organization had recommended five policy directions for controlling tobacco use. These include the provision of smoke-free environments, supportive programmes for tobacco users who wish to stop, health warnings on tobacco packs, bans on the advertising, promotion, and sponsorship of tobacco, and higher taxation of tobacco. Unfortunately, not more than 5% of the world's population is fully covered by any one of these measures, and, in about half of all countries in the world, none of these five recommended policies have been implemented, despite the fact that tobacco control measures are cost effective [3].

Unlike in developed countries where systematic data collection procedures for documenting the prevalence and

pattern of tobacco use are available, this is not so in developing countries [4]. Hence, there is lack of adequate research to guide policy and interventions. The World Health Organization Framework Convention on Tobacco Control (WHO FCTC) which is the first international public health treaty on tobacco control [5] bans tobacco advertisement, promotion, and sponsorship and insulates public health policy from interference by tobacco corporations. This may not be unconnected with the rising prevalence of tobacco use among Nigerian youths [6].

Although a few studies examining the epidemiology of smoking in Nigeria have been conducted among long-distance commercial drivers [7, 8], several others have been skewed towards describing pattern amongst in-school youths in urban areas [9–11] perhaps because adolescents and young adults are often targeted by the tobacco industry for marketing and college age is a transition period from experimental use to tobacco addiction. Therefore, we carried out the present community study with the following objectives:

- (1) to determine pattern and correlates of tobacco consumption among intracity commercial drivers;

- (2) to determine the profile of problems associated with tobacco dependence using indices such as tobacco-related health issues, problems with law enforcement agencies, family problems, injuries, and problems with work that the Composite International Diagnostic Interview (CIDI) [12] uses in generating the diagnosis of tobacco use disorder;
- (3) to identify risk factors for Tobacco dependence.

Hypothesis. Risk of tobacco dependence would be higher among cigarette smokers compared with nonsmoking tobacco users.

2. Methods

2.1. Study Setting. Data was collected between January and July 2009 from intracity commercial drivers (drivers plying Ibadan metropolis and its local government areas as opposed to those travelling out of the city) from the 11 local government areas of Ibadan. Ibadan is the largest indigenous city in black Africa with a population of over 3.5 million people [13]. A total of 851 subjects were selected through a multi-stage probability sampling procedure, representing the intra-city commercial drivers in Ibadan, Nigeria. Initially, 901 drivers were recruited to participate in the study, 50 dropped out for various reasons including ill health response rate was 94.5%. The sample comprised of male drivers between the ages of 23 and 63 years. The majority were hire drivers and were from the low socioeconomic class. The choice of intra-city commercial drivers as the sample population in this study was to enable comparison with the long-distance commercial drivers earlier studied in Ibadan, Nigeria [8, 9].

2.2. Sampling Procedure

Stage 1. All the intracity motor parks in Ibadan were stratified into 11 based on the number of Local Government Areas (LGAs) in the city.

Stage 2. A motor park was randomly selected from each group by balloting.

Stage 3. The total number of drivers in each group was obtained from union leaders.

Stage 4. Drivers were allocated tallies. The first driver in each motor park was chosen by simple random sampling and subsequent ones consecutively until they were all interviewed.

Face-to-face interviews were conducted lasting for an average of 44 minutes, in the respondents' motor parks.

2.3. Ethical Approval. Written consent was obtained from each participant, and ethical approval was obtained from the Ethical Review Committee of the Oyo State Ministry of Health, Ibadan in December 2008.

Data was collected by using the following:

(1) Socio-demographic questionnaire: this asked for information on socio-demographic characteristics such as age,

sex, religion, marital status, occupation, length of years on job;

- (2) The Composite International diagnostic interview (CIDI).

The drug section of the Composite International Diagnostic Interview (CIDI) [12] was used to obtain prevalence of use and diagnoses based on International Classification of Diseases, Tenth Edition (ICD10)/Diagnostic Statistical Manual, 4th Edition DSM IV criteria.

The CIDI is a World Health Organization highly structured instrument that generates psychiatric diagnoses using both ICD 10 and DSM IV criteria. The drug section of the CIDI generates diagnosis (either tobacco use or dependence) using indices (items contained in the instrument) such as health problems, problems with law enforcement agencies, family problems, injuries (accidents), or problems with work that are tobacco related as reported by the respondent. It has cross-cultural reliability and validity and has been validated for use in Nigeria [14]. A computer software "CIDI auto" was used to obtain information on prevalence of tobacco use, and this software also generated diagnosis of tobacco dependence. The CIDI was administered by the authors and two other trained interviewers. The principal investigator was trained in the use of CIDI by O. Baiyewu, who is a licensed trainer in its use.

A sample question as contained in the CIDI that assesses any drug-related injury is: Have you been driving under the influence of any drug or suffering from its after-effects that increased the chances of getting hurt—for instance when driving a motor vehicle?

2.4. Analyses. Analysis of data was carried out using the Statistical Program for Social Studies SPSS version 13.0 [15]. Pearson's chi square statistics was used to test differences for categorical variable. For multivariate risk factor analysis, variables were compared using logistic regression analysis for variables that were significant during bivariate analysis. To facilitate the interpretation of odd ratios, a reference category was always chosen for the independent variables with which other independent variables could be compared. All variables in the tables were entered in the logistic equation for each domain.

3. Results

Their mean age was 42 ± 19.7 years, and 743 (85.7%) were married. Mean age of smoking initiation was 15.4 ± 2.4 years. Current prevalence rate of using any tobacco product was 354 (41.6%). Cigarette was the commonest single tobacco product used by 90 (10.6%) respondents, while cigarette/snuff was the commonest combination 47 (5.5%). Prevalence of nicotine dependence was 158 (18.6%) (Table 1).

According to the bar chart, of the health problems reported all respondents, 39.6% was tobacco related, 31.1% of all family problems were tobacco related, while only 6.3% of all work problems were tobacco related, $\chi^2 = 27.4$, df(4), $P < 0.001$ (Figure 1).

Some of the risk factors associated with nicotine dependence were age of driver <25 years, with OR 5.3, 95%

TABLE 1: Sociodemographic and other characteristics of respondents.

Variables	Total N	%	Frequency	%	χ^2	Sig.
Prevalence						
Age						
<25	96	11.2	67	69.8	50.4	0.00
25–34	174	20.4	96	55.2		
35–44	237	27.8	88	37.1		
45–54	204	24.0	76	37.3		
55–64	85	10.0	31	36.5		
>64	56	65.8	16	28.6		
Marital status						
Married	743	85.7	263	35.4	92.7	0.00
Not married	108	14.3	91	84.3		
Ethnicity						
Yoruba	743	87.3	304	40.9	12.6	<0.01
Hausa	12	1.4	11	91.7		
Igbo	79	9.3	32	40.5		
Others	17	2.0	7	41.2		
Age of smoking initiation						
<15	—	—	134	15.7	NA ^a	NA
15–20	—	—	687	80.7		
>20	—	—	30	3.6		
Introduction to smoking						
Peer	—	—	78	9.2	NA	NA
Driver	—	—	116	13.6		
Motor park operative	—	—	67	7.9		
Parent	—	—	53	6.2		
Sibling	—	—	40	4.7		
Tobacco use			Nicotine dependence			
Types						
Cigarette	90	10.6	34	37.8	12.5	0.01
Pipe	15	1.8	4	26.7		
Snuff	59	6.9	8	13.6		
Oral use (chewing)	29	3.4	8	27.6		
Cigarette/pipe*	46	5.4	10	21.7		
Cigarette/snuff*	47	5.5	11	23.4		
Cigarette/oral(chewing)*	44	5.2	9	20.5		
Pipe/snuff*	11	1.3	2	18.2		
Pipe/oral(chewing)*	4	0.5	1	25.0		
Snuff/oral(chewing)*	6	0.3	1	16.6		
Cigarette + any other 2*	3	0.4	2	66.7		
Any nicotine	354	41.6	158	18.6	NA	NA

A: Not applicable, *all multiple use added together and collapsed into one during chi-square analysis.

CI (3.1–11.4), $P = 0.01$; age of initiation <15 years, OR = 9.2, 95% CI (4.5–19.1), $P < 0.01$; introduction to tobacco by parents, OR = 3.1, 95% CI (2.1–8.3), $P < 0.01$; never married OR = 2.4, 95% CI (1.5–6.5), $P = 0.03$; cigarette smoking OR = 5.5, 95% CI (3.3–10.2), cigarette/snuff combination, OR = 5.8, 95% CI (3.4–12.9), $P = 0.01$ (Table 2).

4. Discussion

This analysis of data has identified the high prevalence of tobacco consumption and nicotine dependence among this population of persons saddled with the professional responsibility of intracity public commuting. This data has also

TABLE 2: Multivariate associations with current prevalence of any tobacco dependence.

	CI	OR	Sig.
Age			
< 25	(3.1, 11.4)	5.3	0.01
25–34	(1.7, 5.3)	2.9	0.03
35–44	(1.2, 5.1)	2.4	0.03
45–54	(0.9, 2.6)	1.4	
55–64	(0.6, 1.7)	0.9	
>64		1	
Race/ethnicity			
Yoruba (ref.)	(0.9, 2.4)	1.2	NS
Igbo	(0.7, 2.3)	1.2	NS
Hausa	(1.4, 3.7)	2.2	0.04
Others		1	
Marital status			
Not married	(1.5, 6.5)	2.4	0.03
Married		1	
Age of smoking initiation			
<15	(4.5, 19.1)	9.2	<0.01
15–20	(3.4, 10.2)	6.1	0.01
>20		1	
Introduction to smoking			
Parent	(2.1, 8.3)	3.1	<0.03
Sibling	(1.1, 4.2)	1.6	0.05
Motor park operative	(1.8, 6.3)	2.9	0.04
Commercial drivers/peer	(1.2, 4.3)	2.1	0.04
Nobody		1	
Tobacco type			
Cigarette	(3.3, 10.2)	5.5	0.01
Cigarette/other tobacco type	(3.4, 12.9)	5.8	0.01
Any tobacco combination but no cigarette		1	

CI: confidence interval.

given a descriptive analysis of the profile of problems associated with nicotine dependence as contained in the Composite International Diagnostic Interview (CIDI) in which health problems were the commonest followed by problems with the family. Their mean age of 42.1 was marginally higher than what was obtained among long-distance commercial drivers in Nigeria [7]. The age of initiation reported in this study is relatively low. The age at initiation of tobacco use generally appears to be declining in some parts of the world [16]. The results of our study are similar to those reported from previous reports though [16, 17]. We also identified the growing popularity of the consumption of nonsmoked tobacco products in Nigeria although the age of initiation to use of such products was not determined.

Similar to previous reports among long-distance commercial drivers [7], the majority of drivers in this study group were married. We reported a current prevalence rate of using any tobacco product of 41.6% which was much lower than among long-distance commercial drivers as earlier

reported [7]. A possible explanation for this finding is that perhaps long-distance drivers use tobacco more because of its stimulant effect. It is recognized that nicotine and nicotine agonists improve performance on attention and memory tasks [18].

We found that cigarette was the commonest single tobacco product used by the respondents; this may be as a result of effect of advertisement by cigarette manufacturing companies. This is very much against the World Health Organization five-policy recommendation for controlling tobacco use [3].

However, cigarette/snuff combination was the most prevalent. The present study reported a prevalence of nicotine dependence of 18.6%; this rate was higher than among long-distance commercial drivers, and we found it difficult to find an explanation to this but this may not be unconnected with the relatively young age of tobacco initiation.

As reported in previous studies [19, 20], health problems was the commonest profile of problems found to be

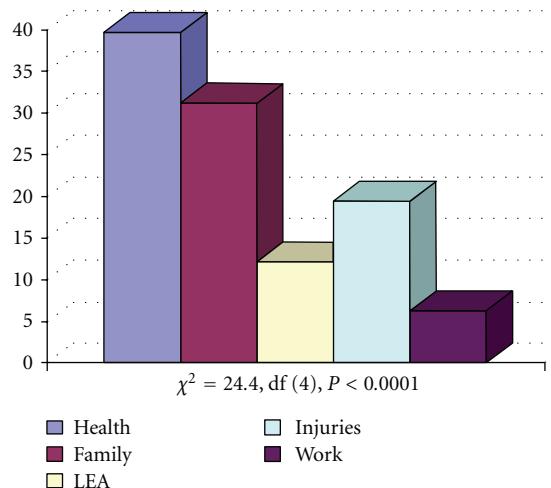


FIGURE 1: Profile of problems associated with nicotine dependence.

associated with nicotine dependence. This finding was not however subjected to multivariate analysis to substantiate this result.

Some of the factors associated with tobacco dependence such as younger age, single conjugal status, and young age of tobacco initiation have been previously reported to be associated with psychoactive substance use in general [7, 21]. We found that use of cigarette and cigarette plus two other tobacco types were associated with tobacco dependence during bivariate analysis. This was confirmed by risk factor analysis. The take-home message in this study is that cigarette is the most important factor in the emergence of nicotine dependence. This may be an indirect reflection of the effect of advertisement. From direct observation, these drivers purchased tobacco products by themselves from street vendors or shops within the motor parks and the common place of smoking was in the motor park or streets or nearby hotels and, in Nigeria, there is no legislation placing a ban on the sale and use of tobacco products or any other psychoactive substance in motor parks [21]. Measures like banning tobacco sale and use in Nigerian motor parks would be sound public health policies in curtailing this problem.

We investigated tobacco use among parents and siblings. An independent factor determining tobacco use and dependence is familial use. Similar reports have been made on parental substance use and use among their offspring [22]. We also observed that belonging to the Hausa tribe was a risk factor for tobacco dependence. This may, be an area of future research to explore the possibility of genetic mediators.

4.1. Limitations. Our study has some limitations. Our survey was cross-sectional and was limited to intracity commercial drivers. The findings may therefore, not reflect causality and may also not be generalizable to the community. Our prevalence rate of current tobacco users may be faulted by how recent is “current.” In this study, current use inferred to use in past 6 weeks. We also did not carry out any toxicological assessment as majority of the drivers use multiple psychoactive substances thereby making it difficult to

substantiate some factors reported to be related to tobacco use or dependence; this poses another limitation to the study. Obtaining substance-related information from subjects may be more reliable if the interview was anonymous. Future research may employ a longitudinal approach in order for the results to be more inferential.

4.2. Conclusion. Tobacco use in any form is prevalent among the commercial drivers. Our initial hypothesis was accepted because our study indicates that cigarette was an important factor in the development of tobacco dependence. Health problems were the commonest in the profile of problems associated with tobacco dependence. It is therefore suggested that enforcement of regulations on sale and use of tobacco products in Nigerian motor parks may also be useful in reducing the prevalence of such health problems. Also, legislations on use of tobacco products need to be enforced to decrease availability, accessibility, and affordability of tobacco products. Policies to bring about changes in acceptability of tobacco use (social norms) among parents, motor park operatives, may also help to curb the tobacco use among drivers.

Conflict of Interests

The authors declared that there is no conflict of interest.

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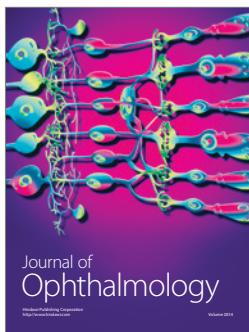
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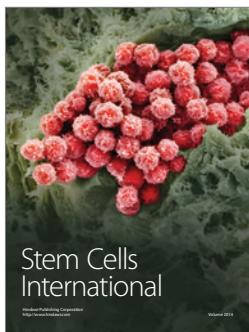
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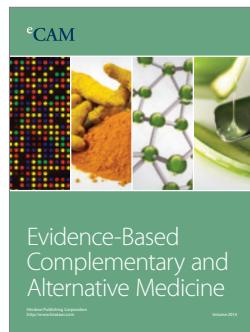
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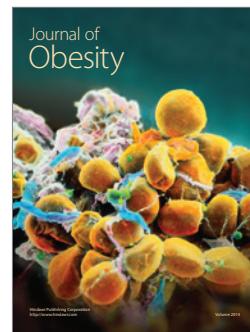
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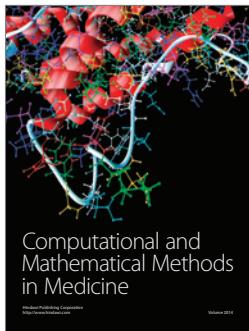
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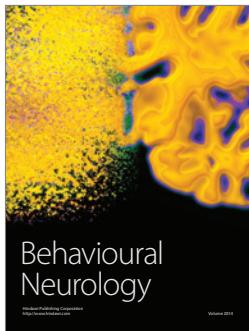
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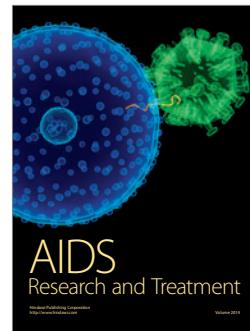
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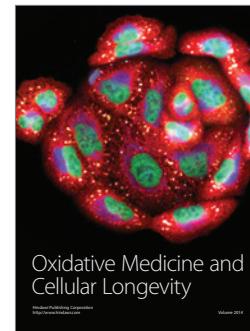
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