



THE IMPACT OF EXPOSURE TO TOBACCO MARKETING ON SMOKING BEHAVIOR AMONG COMMERCIAL MOTORCYCLISTS IN A SUB-URBAN NIGERIAN COMMUNITY

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ABSTRACT: *Exposure to tobacco advertising, promotion, and sponsorship (TAPS) has been associated with tobacco use. However, there has been a dearth of studies in Nigeria that have evaluated this association. This study evaluated the impact of TAPS exposure on smoking behavior among commercial motorcycle riders in Igboora community. A multi-staged cross-sectional study was used to recruit 255 commercial motorcycle riders in Igboora community using an interviewer-based questionnaire. TAPS factors associated with smoking were assessed using logistic regression. There were 138 ever-smokers and 117 never-smokers. Compared to the never smokers, ever smokers were more likely to have items with cigarette brand logo (aOR=2.36; p=0.003), watch sports or other events on TV where cigarette brand names were shown (aOR=2.56; p=0.002), see less anti-smoking messages on billboards (aOR=2.54; p=0.001), see cigarettes advertisement or promotion in newspapers and magazines (aOR=2.78; p=0.005), have been offered a free cigarette by a cigarette brand representative during tobacco promoting programs (OR=2.57; p=0.004). Our study result provided baseline information for the government to evaluate current TAPS regulatory efforts and guide future decision making.*

KEYWORDS: Tobacco advertising, Promotion and sponsorship (TAPS), Smoking, Commercial motorcyclist.



INTRODUCTION

Tobacco use is one of the leading preventable causes of death worldwide (World Health Organization, 2022); approximately half of long-term smokers aged 30 years and older will die from tobacco use (World Health Organization, 2022). In 2020, over 8 million people died from tobacco use (Centers for Disease Control and Prevention, 2022), with about 80% of those deaths occurring in low- and middle-income countries (LMICs) (Stone & Peters, 2017). Furthermore, by 2030, tobacco use will have killed more than 8 million people annually (World Health Organization, 2022).

According to the World Health Organization (WHO), approximately 13 million people smoked in Nigeria in 2012, and smoking was responsible for more than 16,000 deaths (Adeloye et al., 2019; Dim et al., 2015). These alarming figures can be attributed to African countries' vulnerability to tobacco companies' attempts to initiate and entice new smokers (Chido-Amajuoyi et al., 2017). This could be due to the rapidly growing adolescent population, as well as governments' inability or unwillingness to implement effective tobacco control measures (Chido-Amajuoyi et al., 2017).

The most significant contributing factor is increased tobacco advertising, promotion, and sponsorship (TAPS). TAPS exposure has been shown to increase people's likelihood of starting and continuing to smoke (Dim et al., 2015). This is also evident in the Nigerian music and entertainment industries, where concerts and events funded by the tobacco industry have been made free or significantly discounted, ensuring that people from all socioeconomic strata can attend and thus be exposed to tobacco product advertisements (African Tobacco Control Alliance, 2018; Chido-Amajuoyi et al., 2017; Vanguard, 2022).

To address this, Nigeria ratified the World Health Organization's Framework Convention on Tobacco Control (FCTC) (World Health Organization, 2015), promising to implement the defined tobacco control measures. Member states were compelled by law to take action to reduce the supply and demand for tobacco products by employing a framework-protocol approach (Egbe et al., 2019). WHO Monitor Tobacco Use and Prevention Policies (MPOWER) was developed as a scale for assessing how well WHO FCTC policies are implemented at the national level (WHO, 2023). Article 13 of the WHO FCTC discusses steps to avoid TAPS exposure (WHO, 2023). WHO has recommended that member states enact a comprehensive ban on all types of TAPS under this article as a more effective control measure than partial bans (Dim et al., 2015). Unfortunately, TAPS thrived due to insufficient regulation of these tobacco industries in Nigeria and other LMICs, resulting in appalling statistics (Egbe et al., 2019).

About 30% of Nigeria's population is made up of youths (United Nations Population Fund, 2020), many of whom are out of school or simply unemployed (United Nations Population Fund, 2020). They constitute a sizable proportion of the country's population. Commercial bike riders, also known as "Okada riders" (Iribhogbe & Odai, 2009; Tundealao et al., 2024), are an excellent example of this class. They are among those who have been exposed to TAPS through tobacco free product giveaways and logo branding, radio and television advertisements, and TAPS products displayed on billboards and flyers throughout cities (Osinowo, 2017). These people are uneducated and poor, and tobacco companies promise them an affordable way to have a good time



through tobacco use (Osinowo, 2017). Tobacco use by these people is undeniably a public health issue, with negative consequences for both the individual and society as a whole (Chido-Amajuoyi et al., 2017; Osinowo, 2017).

In Nigeria, there have been few studies on the effect of TAPS on smoking habits, particularly in vulnerable populations. Thus, the purpose of this study was to assess the relationship between tobacco advertisement and promotion and smoking behavior among commercial motorcycle riders in the Igboora community in a bid to generate baseline information that could be used to promote governmental tobacco control policies in Nigeria.

METHODS

Study Design, Participating population, and Sampling Technique

A multi-stage cross-sectional study was conducted among commercial motorcycle riders in Igboora Community, a suburban community in Nigeria's southwestern region. Our inclusion criteria were a commercial rider of 18 years or older, and a resident of the Igboora Community. Riders who came from neighboring communities to work were excluded from the study. At the first stage of our multi-stage sampling, we randomly selected nine motorcycle parks from a pool of over 20 parks, and at the final stage of the sampling process, we recruited at least 32 riders from each of those nine motorcycle parks. The motorcycle parks included were Oke Iserin, Pako, Old Garage, Oja-Oba, Igbole, Express, Isale-Oba, Oke-Odo, and Towobowo parks.

Ethical Consideration

We obtained permission to conduct the study from the community and motor park heads. The University College Hospital/University of Ibadan Nigeria ethics committee approved the study (UI/EC/19/0244). The informed consent was signed by the eligible participating riders.

Data Collection and Measures

We designed an interviewer-based questionnaire to collect information on the participants' demographics, smoking habits, tobacco advertisements, and promotion. The smoking status was ascertained by asking the question, *"Have you ever smoked more than 100 sticks of cigarette in your lifetime"* with possible responses of *"Yes"* and *"No."* We assessed exposure to tobacco advertisement and promotion by asking the questions; *"When you go to sports events, trade shows, bashes, concerts, community events, or social gatherings, how often do you see anti-smoking messages?"* with options of *"Never, Few and A lot"*; *"Do you have something (t-shirt, pen, backpack, etc.) with a cigarette brand logo on it?"* with options of *"Yes or No"*; *"When you watched sports events or other programs on TV how often did you see cigarette brand names?"* with the option of *"Never, Sometimes and A lot"*; *"How often do you see anti-smoking messages on billboards"* with the options of *"Never, Few, A lot"*; *"How often do you see advertisements or promotions for cigarettes in newspapers and magazines"* with the options of *"Never, Few, A lot"* and *"Has a cigarette representative ever offered you a free cigarette during tobacco promotion programs?"* with options of *"Yes or No."*



The smoking status was the primary dependent variable. This variable was dichotomized into two categories: (1) Ever Smoker (ES) and (2) Never Smoker (NS). An ever-smoker is a rider who has smoked more than 100 cigarettes in their lifetime, whereas a never-smoker is a rider who has never smoked or has smoked up to 100 cigarettes in their lifetime. The independent variables were the tobacco advertising and promotion questions.

Data Analysis

Descriptive and TAPS information were compared between ES and NS using an independent t-test with equal, Chi-Square and Fisher's Exact tests (as appropriate). Pearson correlation coefficient was used to evaluate the association that the different coping strategies had on the perceived stress scale scores and the self-rating anxiety scale scores. Multivariable binomial logistic regression was used to evaluate the TAPS factors associated with smoking status, while adjusting for age and level of education. Data were analyzed using STATA 18.0/SE. P-value was set at 0.05.

RESULTS

A total of 255 commercial motorcycle riders were enrolled in the study (**Table 1**). About 54% (138) of them were ever smokers (ES), with 63 being current smokers, for a smoking prevalence of 24.71% in this population, and the rest (117) were never smokers (NS). The mean age of ES was 37.4 (± 10.61), while it was 37.3 (± 8.71) for NS. They were all male commercial riders. Around 58% of the ES had less than a secondary school education, while more than half of the NS had a secondary school education or more. More than 90% of the ES were either married or living with their significant other, while about 88% of the NS were married or living with their significant other. Two-Third of the ES did not have a governmental riding permit or license, while about 70% of the NS did not have one ($p < 0.001$). About 70% of the ES rode their motorcycles without a protective helmet, while about 54% of the NS rode their motorcycles without helmets ($p = 0.014$).

Table 1: Demographic and Riding Characteristics

Characteristics	Ever Smokers (ES) n(%)	Never Smokers (NS) n(%)	P-Value
	138 (54)	117 (46)	
Age (in years) (Mean\pmSD)	37.4 (± 10.61)	37.3 (± 8.71)	0.9331
Gender			
Male	138 (100)	117 (100)	
Highest Level of Education			0.081
Primary school and below	80 (58.0)	55 (47.0)	
Secondary school and above	58 (42.0)	62 (52.3)	
Marital Status			0.657
Single/Separated/Divorced	13 (9.4%)	13 (11.1%)	



Married/Living with significant other	125 (90.6%)	104 (88.9%)	
Rider's permit or license			<0.001
Yes	49 (35.5%)	81 (69.2%)	
No	89 (64.5%)	36 (30.8%)	
Riding Experience (Years)	9.6 (\pm 6.06)	11.4 (\pm 7.04)	0.0982
Safety Helmet			0.014
No	95 (68.8%)	63 (53.8%)	
Yes	43 (31.12%)	54 (46.2%)	

Table 2 shows the differences in tobacco advertisement and promotion variables between the two groups (ES and NS). There were statistically significant differences between the ES and the NS in terms of owning something with a cigarette brand logo ($p < 0.001$), seeing cigarette brand names in television events ($p < 0.001$), seeing anti-smoking messages on billboards ($p < 0.001$), seeing tobacco promotion and advertisements in newspapers and magazines ($p < 0.001$), and being offered a free cigarette by a cigarette brand representative during tobacco promoting programs ($p < 0.001$). No statistically significant in seeing anti-smoking messages at social events between the two groups.

Table 2: Tobacco Advertising and Promotion

TAPS	Ever Smokers (ES) n(%)	Never Smokers (NS) n(%)	P-Value
	138 (54)	117 (46)	
When you go to sports events, trade shows, bashes, concerts, community events, or social gatherings, how often do you see antismoking messages?			0.199
A lot	23 (16.7%)	27 (23.08%)	
Never/Few	115 (83.3%)	90 (76.92%)	
Do you have something (t-shirt, pen, backpack, etc.) with a cigarette brand logo on it?			<0.001
No	116 (84.1%)	114 (97.44%)	
Yes	22 (15.9%)	3 (2.56%)	
When you watched sports events or other programs on TV how often did you see cigarette brand names?			<0.001b
Never	42 (30.9%)	63 (56.8%)	
Sometimes/A lot	94 (69.1%)	48 (43.2%)	



How often do you see antismoking messages on billboards			<0.001
A lot	1 (0.7%)	18 (15.4%)	
Never/Few	137 (99.3%)	99 (84.6%)	
How often do you see advertisements or promotions for cigarettes in newspapers and magazines			<0.001
Never/Few	68 (49.3%)	87 (74.4%)	
A lot	70 (50.7%)	30 (25.6%)	
Has a cigarette representative ever offered you a free cigarette during tobacco promoting programs?			<0.001
No	63 (45.7%)	90 (76.9%)	
Yes	75 (54.3%)	27 (23.1%)	

Table 3 shows multiple logistic regression modeled for smoking status (Never Smoker vs. Ever Smoker) adjusting for age, level of education, if the participants see anti-smoking messages at social events, own something with a cigarette brand logo, see cigarette brand names in television events, see anti-smoking messages on billboards, see tobacco promotion and advertisements in newspapers and magazines, and being offered a free cigarette by a cigarette brand representative during tobacco advertisement programs. Compared to the never smokers, ever smokers were more likely to have something with a cigarette brand logo on it (OR = 2.36; 95% CI: 1.33 – 10.70; $p = 0.003$), watch sports or other events on TV where cigarette brand names were shown (OR = 2.56; 95% CI: 1.40 – 4.70; $p = 0.002$), see less anti-smoking messages on billboards (OR = 2.54; 95% CI: 1.51 – 6.93; $p = 0.001$), see cigarettes advertisement or promotion in newspapers and magazines (OR = 2.78; 95% CI: 1.36 – 5.67; $p = 0.005$), and have been offered a free cigarette by a cigarette brand representative during tobacco promoting programs (OR = 2.57; 95% CI: 1.35 – 4.88; $p = 0.004$) while adjusting for other variables.

Table 3: Multiple Logistic Regression Showing TAPS Associated with Smoking

	Adjusted OR	95% CI	P-value
Age	1.01	0.84 – 1.25	0.734
Highest Level of Education	1.27	0.91 – 1.76	0.057
Primary school and below			
Secondary school and above (<i>Ref</i>)			
When you go to sports events, trade shows, bashes, concerts, community events, or social gatherings, how often do you see antismoking messages?			



A lot (<i>Ref</i>) Never/Few	1.31	0.81 – 2.79	0.488
Do you have something (t-shirt, pen, backpack, etc.) with a cigarette brand logo on it? No (<i>Ref</i>) Yes	2.36	1.33 – 10.70	0.003
When you watched sports events or other programs on TV how often did you see cigarette brand names? Never (<i>Ref</i>) Sometimes/A lot	2.56	1.40 – 4.70	0.002
How often do you see antismoking messages on billboards A lot (<i>Ref</i>) Never/Few	2.54	1.51 – 6.93	0.001
How often do you see advertisements or promotions for cigarettes in newspapers and magazines Never/Few (<i>Ref</i>) A lot	2.78	1.36 – 5.67	0.005
Has a cigarette representative ever offered you a free cigarette during tobacco promoting programs? No (<i>Ref</i>) Yes	2.57	1.35 – 4.88	0.004

DISCUSSION

In our study, the smoking prevalence was around 25% (current smokers) and 54% (ever smokers), compared to 3.5% in the general Nigerian population (Adeloye et al., 2019), indicating that commercial motorcycle riders are a vulnerable smoking population in Nigeria. Tobacco control interventions should be targeted specifically at this population.

Anti-smoking messages in social settings have been linked to a decrease in tobacco use, according to research (Shukr et al., 2023). However, we found no link between seeing anti-smoking messages at sports events, trade shows, bashes, concerts, community events, or social gatherings and riders' smoking status in this current study. We believe this is due to Igboora being a small community with few social events. The majority of social events in this community are religious in nature, and tobacco-related activities are usually not tolerated.



Our study found relationships between smoking and possession of items with tobacco logos on them, e.g., backpacks, pens, etc.; exposure to events on television where tobacco brand names are sighted, reduced exposure to anti-smoking messages on billboards, and increased exposure to tobacco advertising and promotion messages on newspapers and magazines. Furthermore, we discovered that ever-smokers are 2.57 times more likely than never-smokers to be offered a free cigarette at tobacco-promoting programs. Our research found that various TAPS can have a negative impact on the initiation and maintenance of smoking behavior among commercial motorcycle riders. Previous research has shown that a strict government ban on tobacco advertisement, promotion, and sponsorship has reduced smoking prevalence in various populations (Chido-Amajuoyi et al., 2017; Isip & Calvert, 2020; Shukr et al., 2023; WHO, 2015). However, those countries were able to successfully implement the WHO FCTC. Our findings suggest that the WHO FCTC has been poorly implemented in Nigeria, as has tobacco advertising, promotion, sponsorship control, and prohibition.

Our study has some limitations:

1. It was a cross-sectional design; our findings are only hypothetical. It could not explain whether there was an association between the commercial motorcycle riders' smoking status and the different forms of TAPS.
2. Our study was conducted in a suburban area in Southwestern Nigeria; the findings might not be generalizable to other parts of the country.
3. There is a high possibility of recall bias because the data was self-reported by commercial motorcycle riders.

Despite these limitations, our study was one of the first studies in Nigeria to explore the association between TAPS and smoking behavior. In fact, it is the first study to explore this association among a population at risk of smoking, i.e., commercial motorcycle riders. Therefore, our findings provide baseline information for future TAPS regulation, policy evaluation, and intervention programs.

Tobacco use is on the rise in Nigeria, and this epidemic has been exacerbated by the country's lax regulatory efforts on TAPS. Our findings show that TAPS significantly impacts tobacco use and provides baseline data for the Nigerian government to use to evaluate current TAPS regulatory efforts and guide future decision-making.

CONFLICT OF INTERESTS

The authors declared that there is no conflict of interest

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