RESEARCH ARTICLE

Risk Perception and Correlates of Tobacco Use among Young People Outside of Formal School Settings in Lagos State, Nigeria

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Abstract

Background: Tobacco use among youth is a major public health problem. Youth outside of formal school settings are often understudied but may be at increased risk. Materials and Methods: A descriptive cross-sectional study was carried out among 326 young people aged 15-24 years in four randomly selected motor parks in Lagos state. Interviewer-administered questionnaires were used to collect data. Results: The mean age of the respondents was 21.0±2.3yrs. Many 252 (77.3%) dropped out before the end of the third year of secondary schooling. The majority were aware that active (78.2%), and passive smoking (77.3%) are harmful to health. Nearly two-thirds of the respondents disagreed with an outright ban of cigarettes (63.2%) and restriction of cigarette sales to persons below 18 years (67.9%) while 254 (66.8%) supported a ban on tobacco smoking in enclosed public places. One hundred and fifty (46.0%) respondents had experimented with smoking of which 106 (32.5%) had progressed to become current smokers. Half of the current smokers, 54 (50.9%), felt the need for a cigarette first thing in the morning. A multivariate analysis for smoking initiation, showed that for every increasing year of age, respondents were 1.08 times more likely to have initiated cigarette smoking; males and respondents who lived alone or with peers were 2.34 times and 1.77 times more likely to have initiated smoking respectively; those who consume alcohol and marijuana were 7.27 and 1.89 times respectively more likely to have initiated smoking while those who consumed alcohol were 6.17 times more likely to be current smokers.

Keywords: Adolescent smoking - non-formal school settings - risk factors - Lagos, Nigeria

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Introduction

Tobacco use is the most preventable cause of death globally and its health hazards are well documented. (World health Organisation, 2015). Everyday, more than 2,800 children under the age of 18 try smoking for the first time.(World health Organisation, 2015; Substance Abuse and Mental Health Services Administration, 2014) The onset of tobacco use occurs primarily in early adolescence, a developmental stage that is far removed by several decades from the death and disability that are associated with smoking in adulthood.(Elders et al., 1994) The fact that many adult smokers initiate their smoking habit as adolescents makes adolescent smoking a significant public health problem. (Elders et al., 1994; Warren et al., 2008).

Apart from the heavy burden of disease associated with tobacco use, smoking is also associated with a host of other risky behaviours, such as fighting, engaging in unprotected sex and carrying weapons. (DuRant et al., 1997; American Cancer Society, 2015) More so, teenagers who smoke are three times more likely than non-smokers to use alcohol, eight times more likely to use marijuana, and 22 times more likely to use cocaine (United states Center for Disease Control, 2015) In addition, adolescents may also be more sensitive to the reinforcing effects of nicotine in combination with other chemicals found in cigarettes, thus increasing susceptibility to tobacco addiction. (National Institute on Drug Abuse, 2015)

There are often large disparities in school enrolment rates in developing countries when compared with their developed country counterparts. (The World Bank, 2015) Almost all youth in many developed countries are enrolled in formal school settings where many opportunities exist for them to receive education on health related behaviours. (The World Bank, 2015; UNICEF, 2015). In addition, the school environment itself may provide certain norms that discourage unhealthy behaviours like cigarette smoking. (The Federal ministry of Education Nigeria, 2006; UNICEF, 2015) However in many developing countries, a significant proportion of young people are not within a formal school setting (The World Bank, 2015). The 2008 Nigeria Demographic Health survey (NDHS) reports that the net attendance ratio (NAR) for secondary school is 49.1% (National Population Commission, 2009). These

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youth may have dropped out of school or in some cases never even attended school. (Akindele et al., 2010) The underlying reasons for this includes poverty, lack of family support, negligence etc. Youth not enrolled in a formal school system may also be denied the opportunity for learning health education in formal school curricula. (The Federal ministry of Education Nigeria, 2006) In addition, during normal school hours, these youths tend to aggregate in areas lacking adult supervision like 'motor parks' or bus stations where they may have easy access to tobacco products in environments that promote tobacco initiation and progression into established use at an early age. (Akindele et al., 2010; Hamisu et al., 2014)

A considerable amount of tobacco-related research has been conducted in Nigeria, however, these have been primarily among youth within formal school settings. (Ekanem, 2008; Salawu et al., 2010; Fawibe et al., 2011; Nwafor et al., 2012; Odukoya et al., 2013; Okagua et al., 2015). The 2008 Nigeria Global Youth Tobacco Survey (GYTS) conducted among 13-15 years olds' reported rates of current smoking ranging from 1.4% to 11.4% in five cities in Nigeria (Ekanem, 2008). Similar surveys conducted among youth in formal school settings in different parts of Nigeria show smoking rates of 5.7%, 7.1%, 9.7%, 13.1% and 33.9%, in Ilorin, Port-Harcourt, Lagos, Anambra and Adamawa respectively (Salawu et al., 2010; Fawibe et al., 2011; Nwafor et al., 2012; Odukoya et al., 2013; Okagua et al., 2015). A descriptive study conducted in Ibadan among out of school youth showed smoking initiation rates as high as 20.5% (Akindele et al., 2010)

This study aimed to assess the knowledge, risk perception, correlates of tobacco initiation and current tobacco use among youth who are outside of formal school settings. It is hoped that the findings emanating from this study will serve as the basis for effective policy formulation for program planners and policy makers who may inadvertently overlook this vulnerable under-researched group.

Materials and Methods

Study design, data collection tool and techniques

This cross-sectional study used a two-stage sampling technique to select youth aged 15-24 years found in garages/motor parks during normal school hours. The first stage involved the selection of four motor parks from a list of those registered with the State Ministry of Transport. The second stage involved the selection of eligible respondents in each motor park. Using the formulae; $n=z2pq/d^2$ with a 95% level of confidence, and assuming a prevalence of tobacco use of 20.5%, as obtained from a previous study among out-of-school youth in Ibadan (Akindele et al., 2010) a minimum sample size of 251 was calculated, allowances for 30% non-response rate was made and the final sample size was 326. Four different motor parks (Ojuelegba, Ojota, Oshodi and Obalende) were selected by simple random sampling from the list of 18 major motor parks in Lagos state Nigeria. Eligibility criteria was youth less than 24 years old, had not attended formal schooling or had dropped out of formal school before the 12th year of schooling in line with the school system of the Nigerian Ministry of Education (SS3). (The Federal ministry of Education Nigeria, 2006; United Nations ; Connecticut Department of Labour, 2006) All eligible and consenting youth available at these parks during normal school hours at the time of the survey were sequentially approached using a structured interviewer-administered questionnaire adapted from the Global Youth Tobacco Survey (GYTS), previously validated among Nigerian youths. (World Health Organization, 2013)The questionnaire was pre-tested and appropriate corrections made thereafter. Reliability testing showed a Cronbach's alpha of 0.71.

Before administration of the questionnaire, information on respondents' age and school attendance was obtained verbally and ineligible youth were excluded. Eligible participants were informed of the nature of the study, written informed consent was obtained and they were assured of the voluntary and confidential nature of the study. Trained research assistants administered the questionnaire. Data collection took place in a private area within the vicinity of the motor park. Prior to the study, and permission was also obtained from local union leaders.

Measures

The questionnaire contained sections on socio-demographic data, knowledge of the health risks of tobacco use, attitude towards tobacco use, patterns as well as their reasons for use. World Health Organization and Centre for Disease Control definitions for smoking initiation and current smoking for youth were used. (World health organization, 2013; Center for disease control) A scoring system was developed based on a review of the existing literature to measure the respondents' knowledge and attitude towards tobacco use. There were sixteen questions assessing respondents' knowledge of the dangers associate with tobacco use, and their knowledge of the specific health related risks associated with tobacco use and second-hand smoke exposure. Each correct answer was awarded a score of one point while each incorrect answer a score of zero for each question assessing knowledge. Questions were given equal weighting during the scoring process. The attitude of the respondents was assessed using a three-point Likert scale for seven questions primarily adapted from the GYTS. Two points were awarded for the most positive answer, and zero for the most negative. The maximum score obtainable was 14 points. Questions assessing respondents' pattern of tobacco use were analysed separately.

Data analysis

The data collected was entered and analysed using the EPI INFO 3.5 and SPSS 16.0 software. Uni-variate analyses was carried out using frequency tables, means, standard deviations and percentages. Bi-variate analyses was done using chi-square and t-tests as appropriate. A step-wise backward regression model, starting with the full model with factors significant at 0.25 in bivariate analysis, was developed to determine the factors associated with tobacco initiation and current smoking among the youth. Firstly, tobacco initiation was used as the dependent

variable, after which another model was constructed with current smoking as the dependent variable. All independent variables were checked for homoscedascity and mutlicollinearity before being included in the model. Effect size was presented as adjusted odds ratios with their respective 95% confidence intervals. Statistical significance was set at p-values ≤0.05.

Results

Socio-demographic characteristics of the respondents

Most of the respondents were within the age group of 23-24 years (31.0%). The mean age of the respondents was 20.96±2.3 years. Majority of the respondents were males (84.7%). Christianity was the predominant religion (61.3%). About ninety percent of respondents had ever attended school and almost eighty percent dropped out before the end of the third year of secondary schooling.

Only 10.7% respondents reside with one or both parents. Most reside either with a relative (26.1%), friends (23.3%), or alone (26.4%). The common occupations practiced by the respondents include driving (26.4%), bus conductor (25.2%), hawking/selling (25.8%) and artisan (12.0%) among others.

Respondents' knowledge of tobacco-related health risks and attitudes towards tobacco smoking and tobacco related policy

Majority of the respondents identified that active (78.2%), and passive smokings (77.3%) are harmful to health. Lung cancer ranked the most frequently reported health risk (n=255; 78.2%); followed by sudden death

Table 1. Respondents knowledge of Tobacco-Related Health Risks

Respondent knows that: (n=326)	Freq (%)
Tobacco use is harmful to one's health	255 (78.2)
Passive smoking is harmful to one's health	252 (77.3)
Knowledge of tobacco related diseases	
Lung cancer	255 (78.2)
Other cancers	183 (56.1)
Heart diseases	201 (61.7)
Sudden death	226 (69.3)
Eye problem	135 (41.4)
High blood pressure	162 (49.7)
Infertility/low sperm count	57 (17.5)
Worsening of asthma	225 (69.0)
Knowledge of disease associated with passive smoking	
Lung cancer	232 (71.2)
Breast cancer	131 (40.2)
Heart disease	213 (65.3)
Worsening of asthma	209 (64.1)
Poor growth in children	65 (19.9)
Ear infections	35 (10.7)

Table 2. Attitude of the Respondent Towards Tobacco Use

Attitudinal statement (n= 380)	Freq (%)
Boys who smoke have more friends	
Agree	140 (42.9)
Uncertain	86 (26.4)
Disagree	100 (30.7)
Girls who smoke have more friends	
Agree	102 (31.3)
Uncertain	98 (30.1)
Disagree	126 (38.7)
Smoking help boost a young person's reputation	
Agree	115 (35.3)
Uncertain	28 (8.6)
Disagree	183 (56.1)
I admire youths who smoke	
Agree	86 (26.4)
Uncertain	220 (67.5)
Disagree	20 (6.1)
I think cigarettes should be banned	
Agree	46 (14.1)
Uncertain	40 (12.3)
Disagree	240 (73.6)
I am in favour of banning smoking in an enclosed place	
Agree	254 (77.9)
Uncertain	30 (9.2)
Disagree	42 (12.8)
Agree	47 (14.4)
Uncertain	21 (6.4)
Disagree	258 (79.1)

Table 3. Pattern of Tobacco use among the Respondents

Variables	Freq (%)
Smoking status (n=326)	
Ever-smoker	150 (46.0)
Current smoker	106 (32.5)
Ex-smoker	44 (13.5)
Mean age at smoking initiation: 15.06	
2.95 years	
Frequency of smoking (n=106)	
Daily	67(63.2)
Weekly	28(26.4)
Monthly	2 (1.9)
Rarely	9(8.5)
Number of cigarette smoked per day (n=106)	
<5	68(64.2)
6 – 10	24(22.6)
11 – 15	3(2.8)
16 – 20	4(3.8)
>20	7(6.6)
Number of days smoked per month (n=106)	
<5	26(24.5)
6 – 10	10(9.4)
11 – 15	7(6.6)
16 – 20	7(6.6)
>20	56(52.8)
Reasons for smoking among current smokers (multiple options allowed)	
Fun	67 (63.2)
To relieve stress	48 (45.3)
Family stress	3 (2.8)
Peer pressure	34 (32.1)
Felt like smoking first thing in the morning	54(50.94)
Othersd	10 (9.4)
Willing to quit smoking (n=106)	72 (67.9)
Attempted quitting in the past year (n=106)	62 (58.5)
Ever used any other form of tobacco product apart from cigarettes	42 (39.6)
Product used (multiple responses allowed)	
Cigars	10 (23.8)
Pipe	9 (21.4)
Hand rolled	4 (9.5)
Snuff	13 (30.9)
Chewing tobacco	9 (21.4)
Hard drug used (marijuana)	68 (20.8)

Table 4. Factors Associated with Ever-smoking among the Respondents

Variable characteristics	Smoking status		Total N=326	χ^2	P
	Ever smoker (n=150)	Never-smoker (n=176)			
	Freq. (%)	Freq. (%)			
Gender					
Male	141 (51.1)	135 (48.9)	276 (100)	18.7	<0.001
Female	9 (18.0)	41 (82.0)	50 (100)		
Religion					
Christianity	85 (42.5)	115 (57.5)	200 (100)	4.5	0.106
Islam	63 (50.8)	61 (49.2)	124 (100)		
Other	2 (100.0)	0 (0.0)	2 (100)		
Ever attended formal schooling					
Yes	142 (46.3)	165 (53.7)	307 (100)	0.13	0.815
No	8 (42.1)	11 (57.9)	19 (100)		
Level of school drop out					
Primary	25 (32.9)	51 (67.1)	76 (100)	6.9	0.012
Secondary	125 (50.0)	125 (50.0)	250 (100)		
Respondents living conditions					
Lives with peers or lives alone	110(53.4)	96 (46.6)	206(100)	12.3	<0.001
Lives with parents or relatives	40(33.3)	80 (66.7)	120 (100)		
Drinks alcohol					
Yes	129 (67.9)	61 (32.1)	190 (100)	87.79	<0.001
No	21 (15.4)	115 (84.6)	136 (100)		
Uses marijuana					
Yes	51 (73.9)	18 (26.1)	69 (100)	27.42	<0.001
No	99 (38.5)	158 (61.5)	257 (100)		
Ever used other forms of tobacco					
Yes	8 (88.9)	1 (11.1)	9 (100)	6.85	0.01
No	141 (44.6)	175 (55.4)	316 (100)		
Mean knowledge score	8.00 (49.8)	8.05 (50.2)		0.11	0.91
Mean attitude score	11.0 (54.5)	9.2 (45.5)		5.78	<0.001
Mean Age	21.5 (51.2)	20.5 (48.8)		3.66	<0.001

Table 5. Factors Associated with Current Smoking among the Respondents

Variable characteristics	Smoking status		Total N = 326	χ^2	P
	Current smoker (n=106)	non-smoker (n=220)			
	Freq. (%)	Freq. (%)			
Gender					
Male	101 (36.6)	175 (63.4)	276 (100)	13.64	<0.001
Female	5 (10.0)	45 (90.0)	50 (100)		
Christianity	60 (30.0)	140 (70.0)	200 (100)	5.23	0.073
Islam	44 (35.5)	80 (64.5)	124 (100)		
Other	2 (100.0)	0 (0.0)	2 (100)		
Ever attended formal schooling					
Yes	100 (32.6)	207 (67.4)	307 (100)	0.008	0.928
No	6 (31.6)	13 (68.4)	19 (100)		
Level of school drop out					
Primary	17 (22.4)	59 (77.6)	76 (100)	4.65	0.031
Secondary	89 (35.6)	161 (64.4)	250 (100)		
Respondents living conditions					
Lives with peers or lives alone	80 (38.8)	126 (61.2)	206 (100)	10.18	0.001
Lives with parents or relatives	26 (21.7)	94 (78.3)	120 (100)		
Drinks alcohol					
Yes	94 (49.5)	96 (50.5)	190 (100)	59.69	<0.001
No	12 (8.8)	124 (91.2)	136 (100)		
Uses marijuana					
Yes	39 (56.5)	30 (43.5)	69 (100)	22.98	<0.001
No	67 (26.1)	190 (73.9)	257 (100)		
Ever used other forms of tobacco					
Yes	8 (88.9)	1 (11.1)	9 (100)	13.41	<0.001
No	98 (30.9)	219 (69.1)	317 (100)		
Mean knowledge score	7.83 (49.1)	8.12 (50.9)		0.56	0.573
Mean attitude score	10.7 (54.0)	9.1 (46.0)		5.09	<0.001
Mean age	21.4(50.7)	20.8 (49.3)		2.28	0.027

Table 6. Determinants of Smoking among the Respondents

Variables	Ever-Smoking		P-value	Current smoking		P-value
	Odds ratio	95% CI		Odds ratio	95% CI	
Age	1.08	0.94-1.24	0.271	0.987	0.855-1.139	0.859
Sex						
Female	1			1		
Male	2.34	0.91-6.08	0.08	2.561	1.835-7.855	0.01
Resides with friends/lives alone	1.77	0.93-3.37	0.184	1.984	1.018-3.865	0.044
Drinks alcohol	7.272	3.941-13.418	<0.001	6.165	3.030-12.544	<0.001
Uses marijuana	1.897	0.925-3.889	0.08	1.617	0.833-3.139	0.156
Uses other forms of tobacco	2.846	0.308-26.328	0.357	8.644	0.913-79.963	0.057
Has anti-tobacco attitudes	0.812	0.729-0.904	<0.001	0.832	0.752-0.920	0.395

(n=226; 69.3%); and worsening of pre-existing asthma (n=225; 69.0%). Of the respondents, 36.8% (n=140) believed that boys who smoke have more friends, 26.8% (n=102) thought that girls who smoke have more friends and 22.6% (n=86) admired youths who smoke. Nearly two thirds (63.2%) of the respondents disagreed with the idea of an outright ban on cigarettes and restriction of cigarette sales to persons below 18 years (67.9%), while 66.8% (n=254) agreed that smoking should be banned in enclosed public places. (Tables 1&2)

Pattern of tobacco use among the respondents

One hundred and fifty (46.0%) of the respondents had initiated tobacco smoking of which 106 (32.5%) are current smokers. A large percentage (63.2%; n=67) of those who smoke are daily smokers. Almost two-thirds (64.2%; n=68) could be considered light smokers, smoking less than 5 sticks per day. The main reasons given by respondents for smoking were for fun 76 (63.2%), to relieve stress 48 (45.3%) and as a result of peer pressure 34 (32.1%). Half of the current smokers 54 (50.94) felt like smoking first thing in the morning. More than two thirds 72 (67.9%) desired to quit smoking (Table 3)

Factors associated with tobacco use among the respondents

A bivariate analysis showed that there was a statistically significant relationship between the age of respondents, male gender, dropping out of school at the secondary level of education, attitudes towards tobacco, living alone or with peers, taking alcohol, marijuana and other tobacco products and initiation with tobacco smoking ($p<0.05$) (Table 4). Similarly, a bivariate analysis of the factors associated with current smoking were age, gender, living alone or with peers, attitudes towards tobacco, consumption of alcohol, marijuana and other tobacco products (Table 5). Religion was associated with current use but not initiation, while the knowledge of tobacco related health risks was not associated with either smoking initiation or current use. A multivariate analysis showed that for every increasing year of age, respondents were 1.08 times more likely to have initiated cigarette smoking; males and respondents who lived alone or with peers were 2.34 times and 1.77 times more likely to have initiated smoking respectively; those who consume alcohol and marijuana were 7.27 and 1.89 times respectively more likely to have initiated smoking. For current use, males and those who lived alone or with peers were 2.56 and 1.98 times more likely to be current users. While those who consumed alcohol were 6.17 times more likely to be current smokers.

Discussion

This is one of the few studies assessing the correlates of tobacco use among out-of-school youth in Nigeria. We found that the prevalence of smoking initiation and progression to current use is high, (46% & 32.5% respectively). In addition, many of the smokers smoke daily. These values are higher than in many studies carried among young people within formal school settings in Nigeria, (Fawibe et al., 2011; ; Nwafor et al., 2012Odukoya et al., 2013; Okagua, et al., 2015) other parts of Africa (Mpabulungi L et al., 2004; Muula AS et al., 2008) and among some in-school youth in developed countries like the USA. (Arrazola et al., 2014; Lee et al., 2015)

But are closer to the figures reported in China (Han et al., 2015) where smoking rates are known to be much higher than in Nigeria. Our figures are also higher than those reported in a similar study among out-of-school youth in Ibadan (Akindele et al., 2010) and among similarly vulnerable youth in more developed nations. (Embleton et al., 2013; Tucker et al., 2014; Twyman et al., 2014; Tucker et al., 2015) These findings give cause for great concern because many youth-oriented tobacco prevention programs are targeted at youth within the formal school system often neglecting those out-of-school, where environmental and personal factors may increase their vulnerability to tobacco use.

Many of these youth smoke daily but are light smokers. Similar to findings done in Nigeria where even a majority of the adults were observed to be light smokers, (Ayo-Yusuf et al., 2014) and in other countries where youth were also more often light smokers. (Fawibe et al., 2011; Odukoya et al., 2013; Global Youth Tabacco Survey Collaborative Group, 2002)This may be because they may not have the economic capacity to purchase many cigarettes. (WHO Tobacco Free Initiative. 2004) However, it has been reported that being a 'light' smoker does not reduce potential for addiction. (DiFranza, 2009)

The main reasons given by respondents for smoking were for fun and due to peer pressure. This agrees with the study carried out by Akindele et al (2010) among out-of-school youth in Ibadan where the predominant reasons for smoking were also peer related.The logistic regression

analyses confirmed that cigarette experimentation and use was related to having friends who also smoke cigarettes. This is in consonance with studies done in Nigeria and in similar African country settings, which show that youth who have friends that smoke cigarettes are more likely to be smokers. (Fawibe et al., 2011; Mamudu et al., 2013; Odukoya et al., 2013). In addition, we found that the relief of stress was also a major reason for smoking among respondents. Out-of-school adolescents may sometimes go through more stressful life events compared to their in-school counterparts and these stressful life events have been shown to be associated with increased risk for smoking and alcohol use. (Simantov et al., 2000). Half of the current smokers felt like smoking first thing in the morning. This might be an indication of nicotine addiction, (Baker et al., 2007) yet more than two thirds desired to quit smoking many of which have made unsuccessful quit attempts in the past year. This highlights the need for the provision of tobacco cessation support programs specifically tailored towards these youth.

This study results further confirmed the strong association between the male gender and tobacco use as reported in previous studies. (Fawibe et al., 2011; Mamudu et al., 2013; Odukoya et al., 2013) In addition, living without adult supervision might play a role in promoting cigarette use among these already vulnerable youth as observed in this study. This may indicate that socio-environmental factors may also play a role in tobacco experimentation, highlighting the need to look beyond the individual and focus on possible environmental factors that may be contributory to tobacco use among these youth.

Tobacco use is often considered a "gateway" drug to alcohol and other substances of abuse. We found a strong association between tobacco use and the use of alcohol/marijuana. While the cross sectional nature of this study does not permit us to say which of these risky health behaviours occurred first. The use of multiple substances of abuse predisposes the youth to higher health risks associated with the combined use of these substances. Various studies have also demonstrated strong associations between smoking and alcohol abuse in adolescents and adults. (Duhig et al., 2005; John et al., 2003) This is also true for smoking and illicit drug use. (Richter et al., 2002) The presence of smoking in adolescents is recognized as a predictor of alcoholism and illicit drug use in young adults. (Lewinsohn et al., 1999) In designing programs to address tobacco use, it might be worthwhile to consider the development of strategies designed to address other substances of abuse like alcohol and marijuana in conjunction with tobacco cessation programs.

Many of the respondents were knowledgeable about some aspects of the health risks associated with tobacco use, despite their being outside of formal school settings. However, this did not translate into preventive practices, as we did not identify a significant relationship between knowledge and either tobacco experimentation or use. Hence youth tobacco prevention programs should go beyond the mere provision of knowledge and focus on other social and environmental factors that may promote tobacco use among youth.

Several limitations of the study need to be acknowledged. Firstly, the study involved only youth outside of formal school setting who aggregate in motor parks. There might be other groups of out-of-school youth who do not aggregate in motor parks hence were not included in the sample and this may limit the generalization of the results. Second, data was collected primarily by self-report and there is a possibility of recall bias, which may lead to misclassification of the youth smoking status. Nevertheless, this study does shed some light on the factors associated with tobacco use among this often understudied and vulnerable set of youth in a developing country like Nigeria.

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