

# Cigarette Smoking, Knowledge of Associated Health Risks and Legislation Amongst Undergraduate Students of a Nigerian University

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## ABSTRACT

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**Objective:** University undergraduate students are majorly young adults and are vulnerable to the harmful habit of smoking. However, scanty information exists about university undergraduate students' smoking habit and knowledge. This study aimed to assess the prevalence of cigarette smoking including its associated knowledge and legislation amongst undergraduate students in a Nigerian university.

**Methods:** The study was cross-sectional in design and was conducted amongst students of University of Medical Sciences Ondo, Nigeria. Data collection on age, gender, prevalence and knowledge of smoking was via structured self-administered questionnaire. Descriptive and inferential statistical analysis was done at 95% confidence interval and p was set at 0.05 using IBM SPSS version 21.0 software.

**Results:** The respondents were 331 in number with a mean of age of  $22.8 \pm 3.8$  years. Males and females were 178(53.9%) and 152(46.1%) respectively. The prevalence of cigarette smoking was 7.6% while 95.2% started smoking at  $\leq 18$  years. Also, 68.0% of those who smoke were willing to quit if assistance is offered. Initiation into smoking was by friends (72.0%) and relief of anxiety (44.0%) was the main reason for smoking. The respondents had good knowledge on health associated risks to smoking but had suboptimal knowledge on smoking and its legislation. Non-smokers had better knowledge of smoking, its associated health risks and legislation than smokers. This relationship was significant in knowledge of addictive properties of nicotine ( $p=0.004$ ) and legislation for smoking in public places ( $p=0.006$ ).

**Conclusion:** University undergraduate students had good knowledge of smoking-associated health risks but inadequate knowledge of smoking and associated legislation. Non-smokers had better knowledge in smoking-related information than smokers. Recommended interventional activities include early access to smoking education and cessation therapy.

**Keywords:** Cigarette smoking, knowledge, legislation, university students

## INTRODUCTION

Tobacco smoking, of which cigarette smoking is the most common form, is indulged by over one

billion people worldwide (Akinpelu, 2015). Nevertheless, reports indicate that cigarette smoking is fret with deleterious effects on the

individual indulging in the habit (Saha et al., 2007). The presence of nicotine and tar, which are part of over 4,000 constituents of cigarette smoke, has been linked with a spectrum of non-communicable systemic diseases and conditions like heart diseases, cancer, pulmonary diseases, stroke and psychological problems (Saha et al., 2007). Cigarette smoking contributes to poor oral hygiene, taste alteration, oral malodour and adverse pregnancy outcomes (Pollack et al., 2000; Setia et al., 2014). Furthermore, the harmful health effects of cigarette smoking are not limited to those who indulge in the habit (Pollack et al., 2000). Its effects can also be significant on those who share the 'air' with smokers through passive smoking (Saha et al., 2007).

Cigarette smoking has been on spotlight of health issues globally. This is because it is the leading cause of preventable deaths worldwide (Akinpelu, 2015). Regrettably, over three-quarter of these reported deaths occur in developing countries (Abdullah & Husten, 2004). Nigeria, a developing country, has a national prevalence of 5.6% compared to the global prevalence of approximately 20% (Saha et al., 2007; Federal Ministry of Health, 2012; Akinpelu, 2015). However, the Nigerian prevalence may be apparent rather than real as smoking habit is under-reported because of the stigma attached to the habit in this part of the world (Akinpelu, 2015). Acknowledgement of this situation by Nigeria provided the impetus for the passing into law the 'National Tobacco Control Act' in 2015 (Oladepo et al., 2018). The Act seeks to control tobacco usage through awareness, fines and restriction in supply of tobacco (Oladepo et al., 2018).

About one third of smokers globally are young adults who are in their late teens to early forties (Perry et al., 1994). This proportion may be higher in Nigeria as the country has a more youthful population compared to the global population (Omoju & Abraham, 2014). In addition, smoking as a habit is very often picked up at a young age (Perry et al., 1994). Hence, preventive programs directed at young people are one of the core approaches in the control of cigarette smoking (Abdullah & Husten, 2004; Perry et al., 1994). One of such preventive programmes involves access to knowledge on smoking and its harmful effects (Tahlil et al., 2013). Although, knowledge on smoking should precipitate desired behaviour of not smoking in theory, evidence is weak that knowledge of smoking is protective against smoking with regards to young adults in practice (Park, 2006). Some of the attributable factors for this observation include peer pressure and identity

crisis in early adulthood (Hammond, 2005; Park, 2006).

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One of the desired goals of university education and training is to mould students into role models who are worthy in character (Alves & Raposo, 2010). Taking up and indulging in smoking leaves a dent on this aforementioned goal in Nigeria. This is because smoking as a habit is viewed in bad light in the Nigerian society as it is often associated with other undesirable vices (Oluwole et al., 2018). Majority of university undergraduate students are young adults (Awopeju et al., 2013). Hence, they are susceptible to taking up and indulging in smoking (Perry et al., 1994). But there is scanty information on prevalence of smoking, associated knowledge including legislation amongst Nigerian undergraduate university students (Amorha et al., 2017; Awopeju et al., 2013). Thus, such information would assist in understanding the smoking characteristics of this group as well as planning for health promotional activities should the need exist. This study therefore aims to elicit information on the prevalence of smoking, knowledge of cigarette smoking and its legislation amongst undergraduate students in a Nigerian university.

## MATERIAL AND METHODS

### Study population and procedure

The study was cross-sectional in design. The study population (n= 1,591 students) were undergraduate students of the University of Medical Sciences, Ondo State, Southern Nigeria. The Yamane formula (Yamane, 1967),  $[n = N/(1+ Ne^2)]$  where  $N$  is the study population size (1,591),  $e$  is the acceptable sampling error (0.05) and  $n$  is the minimal sampling size, was applied to derive the minimal sample size of 320. Participants had to be  $\geq 18$  years old and from whom informed consent was obtained through a written letter attached to the data collection tool. Patient was collected from a convenience sample using a data collection tool. The data collection tool was an anonymous, structured, self-administered questionnaire which was developed with input from two experienced epidemiologists. The data collection was pre-tested among 15 students who were not included in the main study. Extracted data was analysed for reliability and internal consistency. The resultant Cronbach's coefficient alpha score was 0.91.

Ethical clearance was obtained from the University of Medical Sciences Research Ethics Committee.

### Measures of the data collection tool

Socio-demographic data collected were age and gender. Smoking habit, knowledge of about smoking, its health risks and legislation were also obtained from the participants. Furthermore, additional information on age of commencement of smoking, number of sticks consumed per day, agents of smoking initiation, willingness to quit if assisted and reasons for smoking were obtained from smokers only.

Knowledge of smoking was assessed with the questions; Do you know that cigarette stick contains more than 4,000 chemicals? Do you know that cigarette stick contains more than 40 carcinogens? Do you know that passive smoking occurs when close to one smoking? Knowledge of associated health risks of smoking was assessed with the following questions; Do you know that nicotine in cigarettes causes addiction? Do you know that tar level in cigarettes influences lung cancer incidence? Do you know that smoking in pregnancy can harm the unborn child? Do you know that smoking can cause cancer, heart and respiratory disorders? Do you know that passive smoking is as dangerous as active smoking?

Knowledge on cigarette legislation was assessed the questions; Can anyone can smoke anywhere? Do you know that smoking in public places attracts a fine? Do you know that cigarette manufacturers may be liable to pay compensation to smokers who suffer health-related problems? Do you know that cigarette adverts in all forms are banned? Options to each question was yes, no or do not know.

### Data analysis

The responses to the questions were regrouped into (yes) and (no/do not know) for ease of analysis. Data analysis was performed with the IBM SPSS Version 21.0. Descriptive analysis was delivered in average, range, percentages and frequency tables. Inferential analyses were carried at 95% confidence interval with test for significance ( $p$ ) set at 0.05. Chi square test was employed to test for the association between the categorical independent variables and smoking status of the participants.

## RESULTS

### General sample characteristics

The response rate was 89.7% as 331 questionnaires were received after distribution of 369 questionnaires. Reasons for non-participation

included lack of interest in study and blunt refusal. However, one of the questionnaires was discarded because it was improperly filled. The age of the respondents ranged from 18 years to 45 years with a mean of age of  $22.8 \pm 3.8$  years. Males and females were 178 (53.9%) and 152 (46.1%) respectively.

### Smoking habit

The prevalence of smoking was 7.6% ( $n = 25$ ) at 1 – 4 sticks of cigarette daily. Females comprised 32.0% and males 68.0% of those who had smoke habit. For commencement of smoking, 76.2 % started at  $\leq 16$  years while 95.2% started at  $\leq 18$  years. Initiation into smoking was by friends (72.0%), relative (16.0%) and media (12.0%). Of this population ( $n = 25$ ), 68% of the students were willing to quitting if they were to be assisted. Reasons for smoking are shown in Table 1.

### Knowledge of smoking

On the knowledge of smoking, 29.4% knew that cigarette smoke contained more than 4,000 chemicals while 43.3% were aware that cigarette smoke contained more than 40 carcinogens. Table 2 shows the knowledge of smoking.

### Knowledge of associated health risks

The knowledge of smoking associated health risks is shown in Table 3. With regards to the respondents, 73.6% and 89.7% were aware that nicotine in cigarettes causes addiction and smoking in pregnancy can harm the unborn child respectively. Also, 90.6% knew that smoking can cause cancer, heart and respiratory disorders.

### Knowledge of legislation

Only 15.5 % of the respondents knew cigarette manufacturers may be liable to pay compensation to smokers who suffer health-related problems. However, 75.8% of the respondents were aware that smoking in public places attracts a fine. The knowledge of the respondents on cigarette legislation is shown in Table 4.

### Smoking, knowledge of health risks and legislation

Comparison of smoking with selected variables is shown in Table 5. Only 48% and 52% of smokers in the study population knew that nicotine in cigarettes cause addiction and smoking in public places attracts a fine respectively. These relationships were statistically significant ( $p \leq 0.05$ ).

Table 1: Reasons for smoking by the respondents

Reasons for smoking	n	(%)
Relieve anxiety	11	44.0
Feel happy	5	20.0
Increase my study concentration	8	32.0
Attractive physique	1	4.0

Table 2: Respondents' knowledge of smoking

Variable	Yes n (%)	No/ Don't know n (%)
Cigarette stick contains more than 4,000 chemicals	97 (29.4)	233 (70.6)
Cigarette stick contains more than 40 carcinogens	143 (43.3)	187 (56.7)
Passive smoking occurs when close to one smoking	222 (67.3)	108 (32.7)

Table 3: Medical students' knowledge of associated health risks

Variable	Yes n (%)	No/ Don't know n (%)
Nicotine in cigarettes causes addiction	243 (73.6)	87 (26.4)
Tar level in cigarettes influences lung cancer incidence	212 (64.2)	118 (35.8)
Smoking in pregnancy can harm the unborn child	296 (89.7)	34 (10.6)
Smoking can cause cancer, heart and respiratory disorders	299 (90.6)	31 (9.4)
Passive smoking is as dangerous as active smoking	273 (82.7)	57 (17.3)

Table 4: Knowledge of the respondents on cigarette legislation

Variable	Yes n (%)	No/ Don't know n (%)
Anyone can smoke anywhere	101 (30.6)	229 (69.4)
Smoking in public places attracts a fine	250 (75.8)	80 (24.2)
Cigarette manufacturers may be liable to pay compensation to smokers who suffer health-related problems	51 (15.5)	279(84.5)
Cigarette adverts in all forms are banned	227(68.8)	103(31.2)

Table 5: Respondents' smoking habits by gender and some selected knowledge variables

Variable	Smoking habit		X <sup>2</sup>	P
	Yes n (%)	No n (%)		
<b>Gender</b>				
Male	17 (68.0)	161 (52.8)	2.152	0.103
Female	8 (32.0)	144 (47.2)		
<b>Cigarette stick contains more than 40 carcinogens</b>				
Yes	11(44.0)	132(43.3)	0.005	0.552
No/ Don't know	14(56.0)	173(56.7)		
<b>Nicotine in cigarettes causes addiction</b>				
Yes	12(48.0)	231(75.7)	9.157	<b>0.004</b>
No/ Don't know	13(52.0)	74 (24.3)		
<b>Passive smoking is as dangerous as active smoking</b>				
Yes	21 (84.0)	252 (82.6)	0.031	0.550
No/ Don't know	4 (16.0)	53 (17.4)		
<b>Smoking in public places attracts a fine</b>				
Yes	13(52.0)	237(77.7)	8.313	<b>0.006</b>
No/ Don't know	12(48.0)	68(22.3)		
<b>Cigarette adverts in all forms are banned</b>				
Yes	14 (56.0)	213(69.8)	2.060	0.115
No/ Don't know	11(44.0)	92(30.2)		
Total	25 (7.6)	305 (92.4)		

## DISCUSSION

This study examined the smoking habits and associated knowledge with respect to general health and legislation of university undergraduate students. The prevalence of smoking (7.6%) was higher than the national value of 5.6% (Akinpelu, 2015). This indicates that the proportion of smokers is higher in this population than in the general population. A plausible explanation for this finding may be the higher proportion of young adults in this group in comparison with the Nigerian general population (Omoju & Abraham, 2014).

Males were dominant with regards to smoking habit than females. This finding enjoys supports from other studies (Federal Ministry of Health, 2012; Awopeju et al., 2013; Abu Shomar et al., 2014; Akinpelu, 2015). There is a strong stigma attached to smoking by the female gender in culture sensitive society like Nigeria (Awopeju et al., 2013; Abu Shomar et al., 2014). This may be responsible for the observation. However, reasons for female smoking stigmatisation were not explored in this study.

Nearly all the respondents commenced smoking at 18 years and below. Although, this is not an unusual finding (Abu Shomar et al., 2014), it supports the need for early intervention in smoking control in this group (Perry et al., 1994; Nwhator, 2012; Awopeju et al., 2013). The respondents' friends were major agents of smoking initiation. Other agents of smoking initiation were respondents' relatives and the media. In addition, the main reason for smoking was for stress relief. This is in consonance with previous studies in other countries (Abel et al., 2002; de Vries et al., 2003; Abu Shomar et al., 2014). Peer pressure, need for group acceptance and stress at the transitory period of their youthful lives where most of the respondents would make career choices, seek their unique identities or challenges associated with studentship in the university may be probable reasons for taking up smoking habit (Abel et al., 2002). Empathic counselling and guidance may be useful especially when viewed with the background that two-third of the respondents who are smokers are willing to quit if assistance is offered (Lancaster & Stead, 2017).

The respondents exhibited very good knowledge on health associated risks to smoking but had suboptimal knowledge on smoking and legislation on smoking. This may be due to their high education attainment (Tomioka et al., 2020). Also, a higher proportion of non-smokers exhibited good knowledge of smoking, its associated health risks and legislation than smokers in this study. This

noted difference was significant in the knowledge of addictive properties of nicotine and smoking in public places. Contrary findings have been reported (Park, 2006). Nonetheless, similar findings have been reported in literature (Abu Shomar et al., 2014). This study observation infers education can play a useful role in this group in control of smoking habit as better-informed individuals are less prone to take up smoking habit (Lancaster & Stead, 2017; Tomioka et al., 2020).

## CONCLUSION

The prevalence of smoking was higher in Nigerian undergraduate students than the prevalence in general Nigerian population. This reveals the higher susceptibility of youths to taking up smoking as a habit. Early intervention would be beneficial. Guidance and empathic counselling can help in the control of smoking in this group as majority of smokers are willing to quit if assistance is provided. University students had good knowledge of health risks associated with smoking. But they were suboptimal in other aspects of knowledge examined. However, non-smokers had a higher proportion of individuals with good knowledge of smoking than smokers. Appropriate education is also a recommended interventional activity to correct the identified deficiency in knowledge of smoking in this population.

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## Conflicts of interest

The authors declare that they have no conflicts of interest.

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