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Smoking behavior and perception of risk among medical students in Ibadan, Nigeria

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Summary
Background: Tobacco consumption is one of the most important risk factors for premature death throughout the world. Medical professionals and trainees play a major role in tobacco control; however there is a paucity of information about smoking in this important group in Nigeria. The objective of this study therefore, was to assess the prevalence of smoking among medical students, their perception of risks associated with smoking and their attitudes towards tobacco control policies in Nigeria.
Methods: A cross-sectional survey was conducted among 2nd—6th year medical students of the University of Ibadan using a self-administered questionnaire originally developed by WHO but modified to suit the local setting. The students' attitudes to tobacco policy were also assessed by using 17 items adapted from the 35-item smoking policy inventory (SPI).
Results: The overall smoking prevalence was 3%. More men smoked than women ($p = 0.003$). Nonsmokers perceived the risks associated with smoking as higher than did smokers. Furthermore, students in years 4, 5 and 6 (clinical years) perceived the risks associated with smoking as higher than did the students in preclinical years 2 and 3 ($p = 0.012$). The majority of students strongly support tobacco control measures.

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Conclusions: Smoking generally is not common among medical students in Ibadan. Although the clinical students perceived the risks associated with smoking as higher than did the preclinical students, the proportion of smokers among clinical students was higher but the difference was not statistically significant ($p = 0.093$).

Introduction

Tobacco is a leading cause of death worldwide [1]. It threatens millions of lives and is currently responsible for about 5 million deaths each year [2]. At current rates, developing countries account for half of all deaths attributable to tobacco each year [3,4]. Smoking has been significantly associated with various diseases and causes of death, particularly cardiovascular diseases, chronic obstructive pulmonary diseases and lung cancer [5—9].

Researchers have examined previously the prevalence of smoking among Nigerian youth [10], and health professionals in different parts of the country [11—13]. In a recent study in secondary schools in Cross River State, Nigeria, Ima-Obong A. Ekanem found 18.8% of students to have ever smoked cigarettes, 9.1% currently smoking and 20.4% likely to start smoking in the following year [14]. Information about smoking among medical students in Nigeria has not been documented in recent years. This study was targeted at medical students because physicians have probably the greatest potential of any group in society to promote a reduction in tobacco use. Much of the pioneering research and early political lobbying for tobacco control was undertaken by doctors [15]. Their exemplary roles have a significant effect on the risk behavior of the general population and their smoking habits have been considered to predict changes in the smoking habits of the general population [16]. The smoking behavior of medical students, their perception of risks associated with smoking and their attitudes towards anti-tobacco policy will influence whether or how they will counsel their patients regarding tobacco-related diseases.

The aim of this study was to assess the prevalence of smoking among medical students, their perception of risks associated with active and passive smoking and their attitudes towards tobacco control policies.

Materials and methods

A cross-sectional survey was conducted among medical students of the College of Medicine, University of Ibadan in 2002. The College of Medicine of the University of Ibadan is the Nigerian Premier Medical School situated in the South Western part of Nigeria. The medical school in Ibadan runs a 6 year program. General sciences are taught in the first year and medical training commences in the 2nd year. The survey covered 2nd—6th year medical students. The medical training is broadly classified into two levels, preclinical and clinical. The preclinical level comprises of students in years 2 and 3, when they are taught basic medical sciences while the clinical level is made up of students in years 4, 5 and 6 when they have contact with patients. Participation in the study was voluntary. Informed voluntary consent was obtained from every participant verbally. Confidentiality of volunteered information was guaranteed. The proposal was approved by the ethical review committee of the University College Hospital and the University of Ibadan. The International Tobacco Prevention Initiative questionnaire for medical students was used. It was modified to the local setting and pretested prior to the study. The questionnaire covered four categories: demographic information, smoking behavior, perception of risks associated with active and passive smoking, attitudes towards smoking and tobacco control policies. The smoking status were categorized as follows: (i) experimental smoker: a person who has smoked at least one cigarette, but less than 100 cigarettes, and currently does not smoke cigarettes; (ii) daily smoker: anyone who, at the time of the survey, smoked some kind of tobacco product at least once a day; (iii) occasional smoker: anyone who smokes, but less than once a day; (iv) ex- smoker: anyone who had smoked at least 100 cigarettes in his or her lifetime but had stopped smoking at the time of the survey for at least six months and (v) never smoker: anyone who has never smoked. The students' perception of risks associated with active and passive smoking were obtained on a scale of 1—10, where 1 was 'not harmful' and 10 was 'very harmful'. Students' attitudes to tobacco policies were assessed by obtaining their opinion about tobacco control using 17 excerpts from the smoking policy inventory (SPI) items. The smoking policy inventory measures attitudes towards tobacco con-

trol policies. The five dimensions of the SPI are advertising and promotion, public education, laws and penalties, taxes and fees, and environmental restrictions on smoking. Although the SPI had been validated in Australia, Hong Kong, the Netherlands, South Africa, the United Kingdom and the United States [17], only 17 of the 35 items, which were relevant to the cultural setting of our study population were used. For every statement, the students were given the options of ''strongly agree'', ''somewhat agree'', ''neutral'', ''somewhat dis-

agree'', and ''strongly disagree'' (Fig. 1). Views about the role of physicians in tobacco control were also obtained (Fig. 2).

The students were asked to assign importance to a list of reasons why one should not smoke and their responses were compared by their smoking status.

The data were analyzed using SPSS 14 for Windows statistical software and Microsoft Excel. A descriptive analysis of the study sample was done by gender, level of study, ethnicity and religion.


Q1-Q17 indicates Tobacco control policy statements
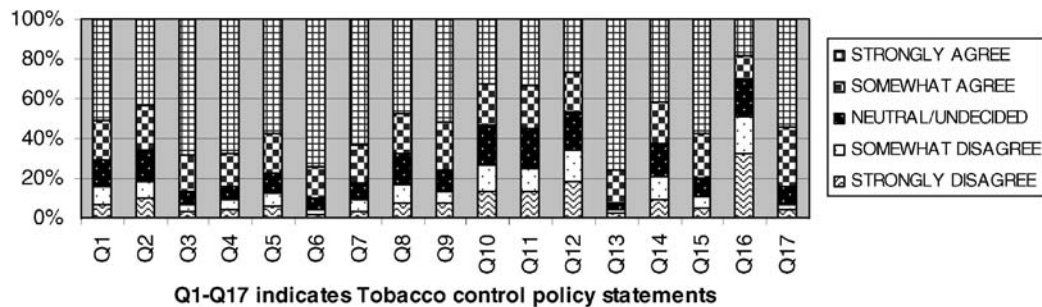
* Q1- Q17: excerpts from the 35-item smoking policy inventory (SPI) described below.

KEY

	STATEMENT	Construct / Theoretical framework on SPI
Q1	Tobacco companies should not be allowed to offer promotional items (i.e., T-shirts or free cigarettes) to encourage the purchase of cigarettes.	Advertising and Promotion
Q2	People who sell cigarettes to minors should be prosecuted.	Laws and penalties
Q3	Smoking in public places should be illegal (or banned).	Environmental restrictions
Q4	Taxes on cigarettes should be increased to discourage smoking.	Taxes and fees
Q5	Laws should impose financial penalties for the sale of tobacco products to minors.	Laws and penalties
Q6	All work sites should be smoke-free.	Environmental restrictions
Q7	Taxes on cigarettes should be increased to prevent youth from acquiring the smoking habit.	Taxes and fees
Q8	All cigarette advertising should be banned.	Advertising and promotion
Q9	Movies that show people smoking should be required to run an announcement on the health hazards of smoking before the movie starts.	Public Education
Q10	Smokers should have to disclose their smoking status when applying for a job.	Laws and penalties
Q11	Tobacco products should be regulated like prescription drugs.	Laws and penalties
Q12	Health and life insurance companies should have the right to refuse smokers.	Laws and penalties
Q13	TV and radio stations should be required to air public service announcements (PSAs) about the dangers of smoking.	Public Education
Q14	Tobacco companies should be forced to pay the government for the costs of the health consequences of smoking	Laws and penalties
Q15	The government should use tax revenue from tobacco to fund anti-smoking programs for schools and communities.	Public Education
Q16	Tobacco companies should be forced to pay individual smokers for the health damage done by their products	Laws and penalties
Q17	The government should spend more money on media and community programs to prevent disease by reducing tobacco use.	Public Education

Figure 1 Ibadan medical students' attitudes to tobacco control measures.
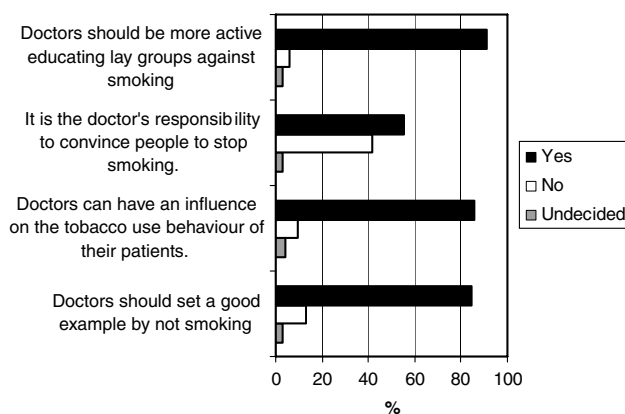
Figure 2 Ibadan Medical Students' views about Doctors role in tobacco prevention and cessation.

Their perception of risks associated with smoking was explored by gender and level of study. Fisher's exact test and the chi square test were used to compare categorical variables while Mann—Whitney U test was used to compare continuous variables between two groups. The level of statistical significance was set at $p = 0.05$.

Results

A total of 1101 students (age range: 17—30 years) were enrolled. The response rate was 72.8%. Fifty seven percent of the respondents were male (Table 1). The majority of the respondents, 66.7% were in their clinical years. Over 80% were Christian, 9.6% Muslim and 1.7% belonged to other religions such as traditional religion or declared atheism. With respect to ethnic groupings, 67.4% of the respondents were Yoruba, 16.2% Igbo, 0.8% Hausa and 15.6% other.

Smoking habits were initially classified according to the criteria described earlier as never smokers (95.5%), occasional smokers (1.1%), daily smokers (1.8%) and ex-smokers (1.6%). Due to the fact there are few smokers among this population, occasional smokers and daily smokers were regrouped as ''smokers'' while never smokers and ex-smokers were regrouped as ''nonsmokers''. The overall prevalence of smoking among the students was 2.9% (4.2% in men and 1.1% in women). The mean age of initiation of smoking was 17 years. There was a significant difference between the smoking prevalence among men and women. Although more clinical than preclinical students smoked, the difference was not statistically significant (Table 2).

Among the smokers, 73.3% were thinking of quitting and 66.7% had actually tried to quit. The proportion of ex-smokers was low (1.6%). Thirty percent of ex-smokers stopped smoking less than 6 months prior and 66.7% stopped within the last 2 years. The students reported various reasons why they smoked. About twenty one percent (20.7%) smoked because of boredom, 17.2% to cope with stress and 10.3% because of loneliness. Other reported reasons constituted 51.7% and these included ''for the fun of it'', ''just feel like it'', ''to feel and belong among friends'', ''to relax'', ''for leisure'', ''to reduce anger'', ''It's become a habit when drinking'', ''to stimulate memory'', ''defense mechanism'', ''to increase sexual prowess''.

Overall, 79.9% believed it was important not to smoke in order to protect health; 69.2% thought it was important to avoid unpleasant symptoms of tobacco-related diseases. Only 8.8% considered

Table 1 Demographic characteristics of the study sample

	Male n (%)	Female n (%)
Study level		
Preclinical	183 (31.2)	161 (36.1)
Clinical	404 (68.8)	285 (63.9)
Total	587 (100)	446 (100)
Ethnicity		
Hausa	5 (0.9)	3 (0.7)
Igbo	96 (16.0)	285 (16.3)
Yoruba	405 (67.6)	305 (67.0)
Others	93 (15.5)	73 (16.0)
Total	599 (100)	455 (100)
Religion		
Christianity	516 (86.4)	415 (91.6)
Islam	72 (12.1)	29 (6.4)
Other	9 (1.5)	9 (2.0)
Total	597 (100)	453 (100)

Table 2 Prevalence of smoking among medical students in Ibadan, Nigeria in 2002

	Nonsmokers n (%)	Smokers n (%)	Total n (%)	p-Value[a]
Level of study				
Preclinical	331 (98.5)	5 (1.5)	336 (100)	0.093
Clinical	662 (96.9)	21 (3.1)	683 (100)	
Gender				
Men	567 (95.8)	25 (4.2)	592 (100)	0.003
Women	443 (98.9)	5 (1.1)	448 (100)	

[a] Fishers exact test.

pressure from a colleague an important reason not to smoke, while 67.5% believed it was important for medical students to set good examples for other students by not smoking. Over 75% would not smoke because of self discipline. Smokers found such reasons as self discipline and setting good examples less important than nonsmokers.

Because perception of how harmful is active smoking was not normally distributed, we compared the mean ranks using a non-parametric test by smoking status, gender and level of study. As shown in Table 3, taken together, nonsmokers perceived active smoking more harmful than did smokers ($p < 0.001$); women perceived active smoking more harmful than men ($p = 0.007$); and the clinical students perceived active smoking more harmful than the preclinical students ($p = 0.012$).

Comparison of the difference in mean ranks for perception of risks associated with second hand smoke by smoking status, gender and level of study followed a similar pattern as described for active smoking, except that men perceived passive smoking being more harmful than did women but the difference between men and women was not statistically significant ($p = 0.639$), Table 4.

Views were also sought regarding the role of physicians in tobacco control. The majority of students believed that doctors should play a major role in health promotion and education about tobacco prevention and cessation (Fig. 2). However, while 91.9% believed that doctors should be more active in educating lay groups against smoking, only 55.1% were of the opinion that it is the doctor's responsibility to convince people to stop smoking. Over 85% agreed that standard training of physicians should include education on how to counsel patients about smoking prevention and cessation, and that they would be more willing to advise people to quit smoking if they had the skills to do so. Fifty-eight percent of the students claimed they received specific training at the medical school on how to support patients who want to quit smoking.

Table 3 Ibadan medical students' perception of risks associated with active smoking in 2002

	Mean rank[b]	p-Value[a]
Smoking status		
Non smokers	526.46	<0.001
Smokers	250.02	
Gender		
Men	506.02	0.007
Women	551.08	
Level of study		
Preclinical	486.60	0.012
Clinical	530.72	

[a] Mann—Whitney U test.
[b] Each of the students was asked to indicate how harmful he or she thinks active smoking is to health by choosing a whole number on a scale of 1—10, where 1 was 'not harmful' and 10 was 'very harmful'. The mean ranks were compared by Mann—Whitney U test because the observations were not normally distributed.

Table 4 Ibadan medical students' perception of risks associated with passive smoking in 2002

	Mean rank[b]	p-Value[a]
Smoking status		
Non smokers	526.35	<0.001
Smokers	309.20	
Gender		
Men	530.77	0.639
Women	522.02	
Level of study		
Preclinical	424.21	<0.001
Clinical	564.21	

[a] Mann—Whitney U test.
[b] Each of the students was asked to indicate how harmful he or she thinks passive smoking is to the health of a nonsmoker by choosing a whole number on a scale of 1—10, where 1 was 'not harmful' and 10 was 'very harmful'. The mean ranks were compared by Mann—Whitney U test because the observations were not normally distributed.

Discussion

Smoking prevalence among the medical students in Ibadan was relatively low. Smoking was more common among men ($p = 0.003$) and more students in the clinical years 4, 5 and 6 smoked than in the preclinical years 3 and 4 ($p = 0.093$). The observation that clinical students were more likely to smoke than the preclinical students could be a cohort effect and not necessarily attributed to the number of years in school. Furthermore, medical students in Ibadan considered health reasons as the most important reasons why people should not smoke. Smokers considered self discipline or setting good example important reasons for doctors not to smoke more than nonsmokers.

Data on smoking prevalence among medical students in Nigeria are very scarce [10,19,20]. A recent study by Omokhodion and Gureje reported a prevalence of 5% among 166 preclinical students [22] and 3.5% among 316 clinical students [23], respectively. Consistent with another recent study, medical students in our study had a lower smoking prevalence compared with the general population of students in the same university 2.9% vs. 5.7% [24]. Similarly, the medical students in Ibadan also had a lower smoking prevalence than the general adult population compared with the rates reported by Mackay and Eriksen in 2002 [18]. In their report in the Tobacco Atlas, a survey conducted by the Federal Ministry of Health in Nigeria in 1998 reported a smoking prevalence of 8.6% in the adult population, 15.4% in men and 1.7% in women. In 1988, Ihezue's survey among medical students in Enugu, Eastern Nigeria reported a smoking prevalence of 28% in men and 4% in women [14]. The study done by Tessier et al. among medical students in Nigeria, as part of a survey of 10 African and middle eastern countries on smoking behavior and attitudes of medical students towards smoking and anti-smoking campaigns in 1992, revealed daily smoking rates of 7% and 2% among male and female medical students, respectively [20]. From the above, there seems to be a downward trend in the prevalence of smoking among medical students in Nigeria. Nonetheless, this rates fall within the range of the global study by Crofton et al. in 42 countries sampled from all continents, which reported that daily smoking in men ranged from 2% to 48% and in women nil to 22%.

Smoking prevalence was lower in women than men. Although ours was not a longitudinal study, it appears that as the medical students progressed through their course, their perception of the risks associated with smoking increased. However more students smoked in the clinical year than the preclinical year. Such findings have also been reported in a previous study [20].

Protection of health was considered the most frequent reason for not smoking. The role of college was negligible, as only 58% claimed they received specific training at school on how to quit smoking. Similarly, in a study conducted among 126 medical students in the USA, 69% of the medical schools did not provide clinical training in smoking cessation technique and only 5.8% of the medical schools provided more than 5 h of instruction on tobacco intervention in the clinical (3rd and 4th) years [21]. Only 56% of our study sample strongly agreed that tobacco use is one of the most serious public health problems. Nonsmokers perceived smoking as more harmful than smokers. This was consistent with a previous study done by Tessier et al. [20].

A longitudinal study is desirable to track the behavior, perception and attitudes of medical students from the second to sixth year to examine the effect of medical training on these parameters over time and to determine whether the current system of education has any effect on the attitudes and behavior of students regarding smoking. There is also a need for qualitative research using in-depth interviews and focus group discussions to probe the reasons why the smoking prevalence of medical students in Ibadan is low. Studies are also needed to examine the medical curriculum in Nigeria in order to identify gaps in teaching with regard to tobacco control.

A major limitation of this study is our inability to validate the claims of the students regarding their smoking behavior with the use of biomarkers of recent smoking such as serum or urinary cotinine and exhaled carbon monoxide, due to financial constraints. Another limitation is that we did not ask the students about use of smokeless tobacco and other forms of tobacco, e.g., snuff, water-pipes, bidis, etc.

In conclusion, the prevalence of smoking is low among medical students in Ibadan. However there is need for more studies that will involve biochemical validation. The perception of risks associated with smoking is high and medical students are in support of restriction of tobacco consumption among the general population.

Competing interest statement

There is no competing interest.

Acknowledgement

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