Young Peoples’ Support for a Smoke-Free Campus Policy: A Case for Smoke-Free Campuses in the Statewide Smoking Law in Lagos State, Nigeria

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Abstract

Background: Smoke-free policies are increasingly being enacted in several countries. In 2014, Lagos State, the commercial capital of Nigeria, enacted a statewide smoke-free policy; however, university campuses were excluded from the list of public places where smoking would be disallowed. This study aimed to assess students’ support for smoke-free campus policies, their attitudes, and exposure toward secondhand smoke (SHS).

Methods: This cross-sectional descriptive study was carried out among 421 university undergraduates in two premier universities in the state. Respondents were selected using a multistage sampling method, and the data were collected using a pretested self-administered questionnaire.

Results: Many (55.4%) of the respondents agreed that students who are non-smokers have the right to inhale smoke-free air on campuses and expressed feelings of irritation (57.1%) or anger (17.1%) when exposed to SHS on campus. Majority (80.1%) of the respondents were in support of a smoke-free policy on their campus and in favor of a ban on smoking in enclosed spaces on campus (79.6%). Exposure to SHS on campus was high, as one in five respondents were exposed to SHS in their hostel rooms (19.9%) and 44.9% were exposed in outdoor campus spaces in the preceding week. There was a statistically significant association between respondents’ age, gender, smoking status, and attitudes toward SHS and support for a smoke-free campus policy.

Conclusion: Although the majority of the students were non-smokers, significant exposure to SHS on campuses still exists. There is a huge support for smoke-free campus policies. The state government should consider including campuses on the list of smoke-free public spaces in the review of the statewide smoking law.

Keywords: Secondhand smoke, smoke-free policy, undergraduates

Résumé

Contexte: Des politiques antitabac sont de plus en plus mises en place dans plusieurs pays. En 2014, l’État de Lagos, capitale commerciale du Nigéria, adopté une politique antitabac à l’échelle de l’État; cependant, les campus universitaires ont été exclus de la liste des lieux publics où fumer serait interdit non autorisé. Cette étude visait à évaluer le soutien des étudiants aux politiques de campus sans fumée, leurs attitudes et leur exposition à la fumée secondaire. Méthodes: Cette étude descriptive transversale a été réalisée auprès de 421 étudiants de premier cycle dans deux grandes universités dans l’état. Les répondants ont été sélectionnés à l’aide d’un système d’échantillonnage à plusieurs degrés et les données ont été recueillies à l’aide d’un questionnaire pré-testé. Résultats: Beaucoup (55.4%) des répondants ont convenu que les étudiants non-fumeurs ont le droit de respirer un air sans fumée et exprimé des sentiments d’irritation (57.1%) ou de colère (17.1%) lorsqu’il est exposé à la fumée secondaire sur le campus. Majorité (80.1%) des répondants étaient favorables à une politique d’interdiction de fumer sur

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Introduction

Worldwide, secondhand smoke (SHS) kills 600,000 people annually. The evidence against SHS exposure is overwhelming. Exposure to SHS adversely affects the health of people. Exposure to SHS irritates the upper respiratory airway and increases the risk of respiratory tract and ear infections; SHS exposure is responsible for the development of lung cancer, bronchitis, pneumonia, thrombosis, ischemic heart disease, and stroke.

Among more than 7000 chemicals that have been identified in secondhand tobacco smoke, at least 250 are known to be harmful and at least 69 of these toxic chemicals cause cancer. SHS exposure among non-smokers is associated with increased anxiety disorders, poor mental health, high levels of stress, increased psychological distress, increased risk of Alzheimer’s disease, and increased risk of severe dementia syndromes. SHS is also associated with an increased risk of abortion, low birth weight (LBW), and prematurity.

Involuntary exposure to tobacco smoke is an important public health problem among young people, particularly in countries where the majority of people are non-smokers. University students, many of who are young people, may face undue exposure to SHS because they may be in the company of friends/peers and other students who smoke.

Smoke-free laws when enacted and properly implemented are effective at protecting non-smokers from SHS exposure. This is particularly important in a country like Nigeria where the majority of people are non-smokers. Smoke-free policies provide protection from SHS exposure, create healthier environments, and change social norms around tobacco use. They may also have the added benefits of encouraging smokers to reduce their overall tobacco consumption and aiding those trying to quit.

The World Health Organization Framework Convention on Tobacco Control addresses the adoption and implementation of effective measures to prevent exposure to tobacco smoke. These guidelines recommend comprehensive smoke-free policies. As governments around the world work toward protecting the life and health of their citizens, smoke-free policies are increasingly being enacted around the world.

In January 2014, Lagos State, the commercial capital of Nigeria, enacted a statewide smoke-free policy. However, campuses were excluded from the list of public places where smoking would be disallowed. This policy review-focused study assessed students’ support for smoke-free campus policies and the knowledge, attitudes, and exposure of the students toward SHS.

The findings of this study aim to document the attitude of university students in the State toward campus smoke-free laws and to highlight the level of SHS exposure and the possible support for an inclusion of campuses on the list of smoke-free public spaces in Lagos State.

Methods

The study was carried out in the two largest university campuses in Lagos State, Nigeria: The University of Lagos, Akoka, which has a student population of approximately 58,000 and the Lagos State University, Ojo, which has a student population of approximately 61,000.

Study design and sample size

This cross-sectional descriptive study was conducted in 2015 (1 year after the implementation of the statewide law). The minimum sample size was estimated using the standard formula for descriptive studies: 

\[ n = \frac{Z^2 pq}{d^2} \]

Using a standard normal variate of 1.96, 5% margin of error, and a prevalence of 65.7% from a similar study, minimum sample size was calculated as 324. This was increased by 30% to account for possible nonresponses bringing the total to 421.

Sampling technique and data collection

A multistage sampling method was used to select the respondents. A list of universities and estimated student populations in Lagos State was obtained from the Lagos State Ministry of Education and the two universities with the largest populations were selected. They were Lagos State University and the University of Lagos. Faculties in each selected University were then selected using a simple random sampling method by simple balloting. Three faculties, faculty of education, engineering, and faculty of sciences, were selected from the list of faculties. In the next stage, departments were selected from each faculty by simple random sampling method by balloting. Two departments were chosen from each selected faculty. Then, four academic levels
in each department were selected and the required number of students in each academic level was selected for the study. Data were collected using self-administered questionnaires. The questionnaire was designed using information from literature and adapted from parts of the Global Youth Tobacco Survey tool. The survey tool had 28 items in four parts and elicited information on respondents’ sociodemographic characteristics and smoking habits; knowledge and attitudes toward SHS; support for smoke-free campuses; and exposure of students to secondhand tobacco smoke.

**Data analysis**

Of 421 distributed questionnaires, 401 were completely filled and analyzed. This gave a response rate of 95%. Data analysis was done using the EPI-INFO version 7.2 software (Epi Info™ CDC Atlanta, GA, USA). Attitude toward smoke-free campus policy was scored as positive or negative. Six questions assessed attitude toward a smoke-free campus policy. Each was on a three-point Likert scale. Each answer in favor of a smoke-free campus policy was scored 2 points. Answers not in favor of smoke-free campus policy were scored 0 points, whereas neutral responses were scored as 1 point. The highest possible score was 12, whereas the lowest possible score was 0. Values ≤6 were termed as having negative attitude, whereas scores >6 were termed as positive attitude. Chi-square was used to test for associations between categorical variables. Significant level set at $P < 0.05$.

**Ethical considerations**

The ethical approval for this study was obtained from Health Research and Ethics Committee of the Lagos University Teaching Hospital. Informed verbal and written consent was obtained from each of the respondents before the questionnaire was administered and strict confidentiality of all information obtained was assured.

**RESULTS**

**Sociodemographic characteristics and smoking habits of the respondents**

Majority of the students were between 20 and 25 years of age (56.9%), with a mean age of 20.6 ± 2.7. Males comprised 58.6% and majority were Christians (77.5%). Yoruba tribe was the most common (73.6%). One-fifth (20%) of the respondents were from faculty of arts. A quarter (25.2%) of the respondents were in their 4th year of university schooling; 28.7% were in their 3rd year; and 25.4% were in their 2nd year. Current smokers were 32 (8.0%). Most of the students were non-smokers (356; 88.8%) [Table 1].

**Knowledge of health risks, perception of harmfulness, and reaction toward exposure to secondhand smoke**

Respondents that believed SHS worsens asthma were 201 (83.4%), and 192 (79.7%) respondents agreed that SHS could predispose to lung cancer. Only 48 (19.9%) respondents knew that SHS exposure could lead to LBW in infants of exposed mother. Respondents who knew that passive smoking is harmful to health comprised 89.1%. The leading sources of information on secondhand tobacco smoke were friends (57.9%), followed by media (42.6%) such as radio and television [Table 2].

About a third (58.9%) respondents believed that secondhand tobacco smoke was definitely harmful and 30.2% thought that it was probably harmful. Two in three respondents felt irritated when exposed to SHS, whereas about one in five felt angry [Table 3].

**Attitudes toward smoke-free air and support for smoke-free campus policy**

Exactly 146 (36.5%) respondents agreed that smokers have a right to smoke if they want; 157 (39.2%) strongly disagreed with the statement “smokers have a right to smoke wherever they want;” and 145 (36.2%) strongly affirmed that they would not give permission to someone to smoke in their presence [Table 4].

In addition, 253 (63.1%) respondents strongly agreed that university campuses and 217 (54.1%) strongly agreed that all public places should be smoke free; 81 (20.2%) strongly opined that non-smokers have the right to inhale smoke-free air [Table 4].

| Table 1: Sociodemographic data and smoking habits of respondents |
|---------------------------------------------------------------|
| **Characteristics** | **Frequency, n (%)** |
| Age (years) | |
| 15-19 | 151 (37.7) |
| 20-25 | 228 (56.9) |
| 26-30 | 22 (5.4) |
| Total | 401 (100.0) |
| Mean±SD | 20.6±2.7 |
| Sex | |
| Male | 235 (58.6) |
| Female | 166 (41.4) |
| Total | 401 (100.0) |
| Religion | |
| Christianity | 311 (77.5) |
| Islam | 84 (21) |
| Other | 6 (1.5) |
| Total | 401 (100.0) |
| Ethnicity | |
| Yoruba | 295 (73.6) |
| Igbo | 69 (17.2) |
| Hausa | 9 (2.2) |
| Others | 28 (7.0) |
| Total | 401 (100.0) |
| Smoking habits of respondents | |
| Had never smoked | 356 (88.8) |
| Had quit smoking | 13 (3.2) |
| Currently smokes occasionally | 27 (6.7) |
| Currently smokes everyday | 5 (1.3) |
| Total | 401 (100.0) |

SD=Standard deviation
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Majority (79.6%) of the respondents were in favor of banning smoking inside any enclosed public space on university grounds; 61.4% were in favor of banning smoking at outdoor places on campus; and 86.6%, 90.6%, and 92.0% opined that cigarette smoking should be banned in hostels, cafeterias, and lecture halls, respectively. Although 77.6% and 70.1% were in support of any law banning smoking in any enclosed public place and all public places, respectively, only 54.7% were aware of such a law [Table 5].

Overall, majority (91%) of the respondents had a positive attitude (attitudes in favor of smoke-free campus policy) and 9% had a negative attitude (attitude not in support of smoke-free campus policy).

### Factors associated with attitudes toward smoke-free campus policy

Students whose ages were above 20 years were more likely to be in support (had more positive attitude) of smoke-free campus policy than those below 20 years ($P = 0.009$). However, male students were more likely to possess statistically significant overall negative attitude toward smoke-free campus policy than female undergraduates ($P = 0.014$) [Table 6].

There was a statistically significant association between respondents smoking status and attitudes toward smoke-free campus policy. Smokers were significantly not in support of the smoke-free campus policy ($P < 0.001$) [Table 6].

### Exposure to secondhand tobacco smoke among students

About 10% of students are exposed to SHS in their hostels for 1–2 days in the preceding week, and 25 (6.2%) were exposed to SHS in their hostels everyday in the preceding week. When asked for the number of days exposed to SHS in outdoor places, 92 (22.9%) were exposed for 1–2 days in the preceding week and 63 (15.7%) were exposed for 3–4 days [Table 7].

### Discussion

In this study, over half of the respondents agreed that non-smokers have a right to inhale smoke-free air. Our study observed an overall attitude score toward smoke-free campus policy of 91%. Furthermore, in a study done among students in New Zealand tertiary institutions, participants indicated strong support for smoke-free campus policies and made several recommendations regarding smoke-free policies.\(^{[10]}\)

Of all the respondents in this study, 79.6% were in favor of banning smoking inside any enclosed public spaces on campus

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**Table 2: Knowledge of the health risks associated with secondhand tobacco smoke among the respondents**

| Variable | Frequency, $n$ (%) |
|----------|-------------------|
| Health-related dangers of passive smoking (multiple responses) | |
| Worsening of asthma | 201 (83.4) |
| Stroke | 52 (21.8) |
| Heart diseases | 159 (66.0) |
| Lung cancer | 192 (79.7) |
| Premature birth, miscarriage, and still birth | 70 (29.1) |
| Ear infections in exposed children | 33 (13.7) |
| LBW in children of exposed mother | 48 (19.9) |
| Respondent thinks passive smoking is dangerous to health | |
| Yes | 213 (89.1) |
| No | 5 (2.1) |
| Unsure | 23 (8.8) |
| Total | 241 (100.0) |

LBW=Low birth weight

**Table 3: Respondents’ perception and reaction to secondhand smoke**

| Variable | Frequency, $n$ (%) |
|----------|-------------------|
| Respondents’ perception of SHS | |
| Definitely not harmful | 14 (3.5) |
| Probably not harmful | 30 (7.5) |
| Probably harmful | 121 (30.2) |
| Definitely harmful | 236 (58.9) |
| Total | 401 (100.0) |
| Reactions when people smoke in vicinity (multiple responses) | |
| Irritated | 229 (57.1) |
| Indifferent | 102 (25.4) |
| Angry | 69 (17.2) |
| Afraid | 28 (7.0) |
| Others | 13 (3.2) |

SHS=Secondhand smoke

**Table 4: Attitude toward secondhand tobacco smoke and smoke-free air**

| Variable ($n=401$) | Strongly agree, $n$ (%) | Agree, $n$ (%) | Neutral, $n$ (%) | Disagree, $n$ (%) | Strongly disagree, $n$ (%) |
|--------------------|------------------------|----------------|-----------------|------------------|--------------------------|
| Smokers have a right to smoke if they want | 115 (28.8) | 146 (36.5) | 62 (15.5) | 47 (11.8) | 30 (7.5) |
| Smokers have a right to smoke wherever they want | 31 (7.7) | 27 (6.7) | 38 (9.5) | 148 (36.9) | 157 (39.2) |
| Non-smokers have a right to inhale smoke-free air | 164 (40.9) | 58 (14.5) | 32 (8.0) | 66 (16.5) | 81 (20.2) |
| Universities campuses should be smoke free to safeguard the health of non-smoking students | 253 (63.1) | 68 (17.0) | 34 (8.5) | 12 (3.0) | 34 (8.5) |
| All public places should be smoke free | 217 (54.1) | 96 (23.9) | 44 (11.0) | 20 (5.0) | 24 (6.0) |
| People who wish to smoke should ask others for permission | 176 (44.0) | 113 (28.3) | 55 (13.8) | 39 (9.8) | 17 (4.3) |
| I would allow someone who asks for permission to smoke in my presence | 37 (9.2) | 56 (14.0) | 64 (16.0) | 99 (24.7) | 145 (36.2) |
and 61.4% were in favor of banning smoking at outdoor places on campus. Similarly, in a study among staff and students in Western Australia University, 65.7% of respondents were in favor of the campus being smoke free.[9] Moreover, a higher proportion of respondents (87%) in a university in Egypt agreed with the banning of smoking at the university altogether.

Older students, above the age of 20 years, were more likely to be in support of smoke-free campus policy than those below 20 years in this study. A similar finding was observed in a study among undergraduates in Spain where older students were also more likely to support outdoor smoking bans.[11] The cumulative effect of age may be responsible for older students being more in support of smoke-free policies as they are likely more knowledgeable about the harmful effect of secondhand tobacco smoke.

Female students were also more likely to possess overall positive attitude toward smoke-free campus policy than their male counterparts. This is similar to the study done among college students in Minnesota whereby their attitude regarding policies differ by gender, with female students being more in favor of smoke-free campus policy.[12] The prevalence of smoking among female is found to be less compared to males across settings and this may contribute to this finding.

This study found a statistically significant association between respondents smoking status and attitudes toward smoke-free campus policy. Smokers were significantly not in support of the smoke-free campus policy ($P < 0.001$) although support for a smoke-free campus was found, even among some who reported smoking behavior. Furthermore, in a study carried out in a university campus in Southwest United States, it was found that non-smokers had the most favorable attitude toward non-smoking policies, whereas regular smokers had the least favorable attitude[13] even though, support for smoke-free campus was found among those who reported some smoking behavior.[13] This findings show that non-smokers are more likely to support smoke-free campus policy. However, some

| Table 5: Attitude toward smoke-free campus policy |
|--------------------------------------------------|
| Variable (n=401) | Yes, n (%) | Unsure, n (%) | No, n (%) |
| In favor of banning smoking inside any enclosed public spaces on campus | 319 (79.6) | 37 (9.2) | 45 (11.2) |
| In favor of banning smoking at outdoor places on campus | 246 (61.4) | 88 (22.0) | 67 (16.7) |
| Believed that cigarette should be banned on campuses in the following public spaces |
| Hostels | 347 (86.6) | 27 (6.7) | 27 (6.7) |
| Cafeterias | 363 (90.6) | 27 (6.7) | 11 (2.7) |
| Lecture halls | 368 (92.0) | 18 (4.5) | 14 (3.5) |
| Every enclosed spaces | 318 (79.3) | 51 (12.7) | 32 (8.0) |
| In favor of banning smoking inside enclosed public spaces outside campus | 283 (70.6) | 0 (0.0) | 118 (29.4) |

| Table 6: Factors associated with attitudes toward smoke-free campus policy |
|--------------------------------------------------|
| Variable | Negative (n=36; 9.0%) | Positive (n=365; 91.0%) | Total (n=401; 100%) | P |
| Age (years) |
| <20 | 28 (12.2) | 202 (87.8) | 230 (100) | 0.009 |
| >20 | 8 (4.7) | 163 (95.3) | 171 (100) |
| Total | 36 (9.0) | 365 (91.0) | 401 (100) |
| Sex |
| Male | 28 (11.9) | 207 (88.1) | 235 (100) | 0.014 |
| Female | 8 (4.8) | 158 (95.2) | 166 (100) |
| Total | 36 (9.0) | 365 (91.0) | 401 (100) |
| Religion |
| Christianity | 32 (10.3) | 279 (89.7) | 311 (100) | 0.118 |
| Islam | 4 (4.8) | 80 (95.2) | 84 (100) |
| Total | 36 (9.1) | 359 (90.9) | 395 (100) |
| Residence |
| On campus | 17 (8.6) | 181 (91.4) | 198 (100) | 0.786 |
| Off campus | 19 (9.4) | 184 (90.6) | 203 (100) |
| Total | 36 (9.0) | 365 (91.0) | 401 (100) |
| Smoking status |
| Smoker | 15 (33.3) | 30 (66.7) | 45 (100) | <0.001 |
| Nonsmoker | 21 (5.9) | 335 (94.1) | 356 (100) |
| Total | 36 (9.0) | 365 (91.0) | 401 (100) |
smokers also support introduction of a smoke-free campus policy and this may be because they are dissatisfied with their smoking status and are also concerned about its harmful effects. About 90% of the students in this study agreed that passive smoking is dangerous. A similar finding was observed among adolescents attending an Ethiopian school where 84.6% agreed that smoke from others is harmful to them.[14] The result from this study is also similar to the study conducted in Ghana where 82.6%[15] strongly agreed with the belief that passive smoking was dangerous to one’s health. However, in a cross-sectional descriptive study done among students of tertiary institutions in Benue State, Nigeria, only 42% of the respondents reported that SHS could have harmful effects.[16]

In our study, exposure to SHS was more in bus stop/garage (140; 56.5%), walk ways (89; 35.9%), and hostels (67; 27.0%). Exposure at clubs was 8.9%. This may be because fewer students visit clubs. In a study carried out in North Carolina, USA, exposure in a restaurant or bar (65%) was the most common, followed by exposure at home/in the same room as a smoker (55%) and in a car (38%).[17]

**Study strength**

This is the first study to assess the support for a smoke-free campus policy after the passage of the statewide antismoking law.

**Limitation**

Only two universities were used in this study, so it is not totally generalizable but largely so. Due to the cross-sectional nature of the study, no causal inferences can be made.

**Conclusion**

Although most of the students are non-smokers, there was significant exposure to SHS among them. Students had fairly good knowledge of the harmful effects of SHS. Majority had attitudes that favored a smoke-free environment and demonstrated strong support of a smoke-free campus policy. It is recommended that the state government should consider inclusion of campuses in the statewide antismoking law.

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**Conflicts of interest**

There are no conflicts of interest.

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