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PROMOTING CESSATION AND A TOBACCO FREE FUTURE: KNOWLEDGE AND ATTITUDE OF PHARMACY STUDENTS REGARDING SMOKING CESSATION IN A NIGERIAN UNIVERSITY

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ABSTRACT

Tobacco smoking is a global public health threat and the largest single driver of health inequalities. Currently, there are over a billion smokers worldwide with approximately 80% of the smokers living in low-and-middle-income countries like Nigeria. Knowledge gaps on smoking cessation among pharmacy students might impact the quality of service these future pharmacists would provide in practice. Therefore, this study aimed to evaluate the knowledge and attitude of pharmacy students regarding smoking cessation in a Nigerian university. A University-based cross-sectional study was conducted among 277 pharmacy students of a Nigerian university using a pretested self-administered questionnaire between August and December 2019. Data were summarised descriptively using IBM SPSS (version 23). Most of the pharmacy students 203 (73.2%) agreed it is the pharmacists' responsibility to support patients with smoking cessation. The majority of our respondents 226 (81.6%) reported pharmacy students need more training on smoking cessation. Thirty-three (11.9%) pharmacy students knew nicotine does not cause cancer. Less than one-tenth 27 (9.7%) of the pharmacy students were aware of smoking cessation products. Overall, 203 (73.2%) respondents had poor knowledge (score < 60%) and an average positive attitude about smoking cessation. Pharmacy students have suboptimal knowledge about smoking cessation. However, they revealed a positive attitude towards smoking cessation. Therefore, there is a need for educational interventions to address the deficit in smoking cessation knowledge, as well as equip future healthcare providers. Thus, improving the quality of public health especially among smokers in Nigeria.

***Keywords*:** Smoking cessation, Public health, Pharmacy education, Nigeria

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INTRODUCTION

Tobacco smoking is the lead cause of preventable deaths worldwide (Giovino *et al*. 2012). Globally, there are over a billion smokers and approximately 80% of these smokers are an inhabitant of low-and-middle-income countries (World Health Organization [WHO] 2018). More than 6 million of the fatalities resulted from direct tobacco consumption while an estimated 900,000 mortality records were due to exposure of non-smokers to secondhand smoke (WHO 2018). It is estimated that by 2030, the death toll could rise to over 8 million, annually (WHO 2015).

Non-infectious diseases account for about 80% of preventable deaths in Nigeria and most other developing nations and the lone major preventable risk factor of these diseases is tobacco smoking (WHO 2013). Training pharmacy students to educate patients about lifestyle-modification strategies such as smoking cessation might reduce the burdens of chronic diseases (Islam *et al*. 2014). Smoking cessation is often not being taught as a specific course in Nigerian pharmacy schools. It appears in some of the course content in some therapeutic lifestyle modification strategies such as diabetes and hypertension. Traditional training for healthcare students' focuses on treating diseases with little attention towards preventing disease occurrence (Osemene and Erhun 2018; Derryberry 2004). Based on the need to change the landscape of healthcare students training, various stakeholders now recommend curriculum changes to include courses about public health ranging from health promotion, wellness and disease prevention (Schommer *et al*. 2019; Lucero-Prisno *et al*. 2019; Tavolacci *et al*. 2018).

The much-needed roles of pharmacists in providing smoking cessation services have been well-documented in the literature (Roughead *et al*. 2003; Sinclair *et al*. 2004; Dent *et al.* 2007; Akande-Sholabi and Adebisi 2021), being one of the most accessible healthcare providers. The International Pharmaceutical Federation (FIP) issued a policy that promotes pharmacist's roles in reducing tobacco consumption. These policy statements further reiterated that pharmacists ought to offer smoking cessation services to anyone that wants to quit smoking or to anybody who suffers from smoking-related illnesses (FIP 2003). Since the origin of pharmacists' knowledge is usually acquired during university training, it is therefore essential that understanding the knowledge and attitude of future pharmacists would be an imperative indication of their 'level of awareness' about smoking cessation.

We hypothesised that increasing the knowledge and skills of pharmacy students and addressing awareness gaps of future pharmacists of their role in smoking cessation services could create a positive attitude towards rendering the services. Pharmacy students are future pharmacists and they could play an essential role in public health interventions such as smoking cessation. Therefore, this study aimed to assess the knowledge and attitude of pharmacy students at the University of Ibadan, Nigeria regarding smoking cessation.

METHODS

Study Design and Settings

A cross-sectional survey was conducted using a self-administered questionnaire distributed among undergraduates of the Faculty of Pharmacy, University of Ibadan between August and December 2019. Eligible participants were registered undergraduate pharmacy students (1st–5th year) for the 2018/2019 academic session and consented

to partake in the study. Students that were absent and non-consenting were excluded from the study.

Sample Size Determination

Based on the population of 360 registered students obtained from the faculty management, the confidence level was set at 95% and the alpha error at 5%, arriving at a sample size of 189 using Yamane's formula (Yamane, 1967). Additionally, to cater for the possibility of a low response rate, which is not uncommon among students, an attrition rate of 60% that will tolerate a larger sample size of 315 respondents was agreed to by the researchers.

Sampling and Data Collection Procedure

From the first year to the fifth year in the faculty of pharmacy, a compulsory course was identified. The study respondents were consecutively approached shortly after the mandatory course. The researcher informed the participants of the aims and objectives of the study. Questionnaires were disseminated to all consented pharmacy students and recovered within 20–25 min. Study participation was voluntary and the students were informed of the possibility of withdrawing from the study anytime. Response anonymity and confidentiality were reiterated to the respondents. Measures were put in place to prevent multiple filling of the questionnaire by the respondents. No incentive was provided for participating in the study.

Pretest and Content Validation

The questionnaire was assessed for content validity by two pharmacists in academia with knowledge expertise in smoking cessation, chosen from the Department of Clinical Pharmacy and Pharmacy Administration, University of Ibadan, to ascertain the comprehensiveness of question-items vis-à-vis the study objectives, as well as ensuring that there are no ambiguous questions or statements. Thereafter, the questionnaire was administered to eight students from the Faculty of Pharmacy, to be sure of ease of comprehension of questions or statements in the questionnaire. The students included in the pretests were exempted from the actual study. The responses from the students led to some modifications in the questionnaire such as some questions especially those in an open-ended format which were re-modified to eliminate response ambiguity.

Data Collection Instrument

A semi-structured questionnaire was designed by the researchers following a comprehensive review of appropriate studies (Salgado *et al*. 2017; Saba *et al*. 2013), as well as utilising researchers' proficiency. The data instrument contained three parts. Part A comprised of sociodemographic (participants) characteristics, Part B included questions on smoking status and habit, Part C comprised knowledge and attitude statements. The questionnaire consisted of 17 knowledge statements and 12 attitude statements.

Knowledge and Attitude Index

For each knowledge statement, a correct response was assigned a score of '1', and an incorrect response, I do not know and neither agree nor disagree response was scored as '0'. The overall knowledge score was attained by adding the scores for all knowledge responses. Then, an 'overall knowledge percent score' was calculated by multiplying the total knowledge score for each participant by 100 and dividing by 17.

For each attitude question, a positive response was assigned a score of '1', and a negative response, I do not know and neither agree nor disagree responses were scored as '0'. The overall attitude score was attained by adding the scores for all attitude responses. Then, an 'overall attitude percent score' was calculated by multiplying the total attitude score for each participant by 100 and diving by 9.

Data Analysis

At the end of each day of the data collection, administered questionnaires were sorted and coded, consecutively. Data were analysed using SPSS (version 23). The data were summarised using descriptive statistics with frequency and percentage. In this study, the overall score by our respondents in the knowledge and attitude domains was translated into percentages to ensure standardisation in the scores.

In the knowledge domain, an aggregate score of ≥ 60% indicated 'good' knowledge, while a score < 60% indicated 'poor' knowledge. Hence, a percent score of ≥ 60% signifies a score of ≥ 10 out of the 17 questions that assessed the common knowledge of smoking and smoking cessation among pharmacy students. While for the attitude domain, an aggregate score of ≥ 80% was cogitated as a 'positive' attitude, while a score < 80% indicated a 'negative' attitude. Hence, a percent score of ≥ 80% signifies a score of > 7 out of 9 questions on attitude. Bloom's cut-off point criteria, as well as a review of other studies, were employed in determining the binary categorisation (Bloom 2002; Akande-Sholabi *et al*. 2019; Akande-Sholabi and Adebisi 2021).

Ethical Consideration

Ethical approval was obtained from the University of Ibadan/University College Hospital ethics review board with IRB number EC/19/0406.

RESULTS

Demographic Characteristics and Smoking Cessation Related Descriptive

Table 1 shows out of the 315 copies of questionnaire distributed to the pharmacy students, 277 were completely filled and returned representing a response rate of 81.5%. One hundred and fifty respondents (54.2%) were males. The mean age was 21.55 (± 3.12) years old, with the majority of 168 (60%) aged above 20 years old. Most of the participants 263 (94.9%) have not attended any specific smoking cessation training and 180 (65%) are willing to attend smoking cessation training. Majority 265 (95.7%) were non-smokers and 70 (25.3%) of the participants claimed that pharmacy school provided knowledge and skills on smoking cessation.

Table 1: Participant's demographics characteristics and smoking cessation related descriptive.

Variables (*N* = 277)	**Responses**	***n* (%)**
Sex	Males	150 (54.2)
	Females	127 (45.8)
Age group (years)	≤ 20	109 (39.4)
	> 20	168 (60.6)
Year of study	First	53 (19.1)
	Second	26 (9.4)
	Third	57 (20.6)
	Fourth	65 (23.5)
	Fifth	76 (27.4)
Have you attended specific training in smoking cessation prior this time?	Yes	14 (5.1)
	No	263 (94.9)
Are you willing to attend a smoking cessation training?	Yes	180 (65.0)
	No	97 (35.0)
Does pharmacy school equip you with required skills and knowledge on smoking cessation?	Yes	70 (25.3)
	No	207 (74.7)
Is smoking cessation training in your pharmacy school satisfactory?	Yes	59 (21.3)
	No	218 (78.7)
Smoking status	Yes	4 (1.4)
	No	265 (95.7)
	Former	8 (2.9)

Students' Knowledge on Smoking and Smoking Cessation

Three-quarters of the students were aware tobacco smoking is an addiction 207 (74.7%), while 33 (11.9%) knew nicotine does not cause cancer. In all, 74 (26.7%) had a score of ≥ 60% indicating 'good' knowledge of smoking and smoking cessation among pharmacy students (Table 2).

Table 2: Knowledge of smoking and smoking cessation among pharmacy students.

Knowledge statements (*N* = 277)	**Correct responses *n* (%)**	**Wrong responses *n* (%)**	**I do not know *n* (%)**
Smoking rate is decreasing in Nigeria over a decade ago Correct response: True	58 (20.9)	131 (47.3)	88 (31.8)
Passive smoking is not harmful to health. Correct response: False	193 (69.7)	46 (16.6)	38 (13.7)
Nicotine dependence is mediated by dopamine within the reward system of the brain. Correct Response: True	79 (28.5)	66 (23.8)	132 (47.7)
The combination of behavioral and pharmacological therapy has been shown to be as effective as each alone. Correct Response: False	99 (35.7)	111 (40.1)	67 (24.2)
Nicotine replacement sublingual tablets and patches are more effective than gums, lozenges and inhalers. Correct response: False	70 (25.3)	57 (20.6)	150 (54.1)
Varenicline is considered safe in smokers younger than 18 years. Correct response: False	86 (31.0)	59 (21.3)	132 (47.7)
Relapse is uncommon if patients comply with their optimal smoking cessation plan Correct response: False	101 (36.5)	92 (33.4)	84 (30.1)
Some anti-depressants and anti-hypertensives can be used as smoking cessation therapeutic options Correct response: True	106 (38.3)	63 (22.7)	108 (39.0)
Nicotine withdrawal symptoms are associated with increased noradrenergic outflow, secondary to deactivation of the reward system Correct response: True	73 (26.4)	87 (31.4)	117 (42.2)
If a patient has smoked for a long time, it is too late to stop because the patient would not be able to do it Correct response: False	139 (50.1)	66 (23.8)	72 (26.1)
If a patient has smoked for a long time, it is too late to stop because their health is already irreversibly affected Correct response: False	163 (58.9)	10 (3.6)	104 (37.5)
Of the patients who quit smoking, the majority succeed on their first attempt Correct response: False	126 (45.5)	94 (33.9)	57 (20.6)
Tobacco consumption is an addiction Correct response: True	207 (74.7)	43 (15.6)	27 (9.7)

(continued on next page)

Table 2: (*continued*)

Knowledge statements (*N* = 277)	**Correct responses *n* (%)**	**Wrong responses *n* (%)**	**I do not know *n* (%)**
Very light smoking (1–5 cigarettes per day) is harmless to health Correct response: False	221 (79.7)	22 (7.9)	34 (12.4)
Smoking on non-daily basis is not harmful to health Correct response: False	225 (81.3)	21 (7.6)	31 (11.1)
Tobacco smoke in the environment (passive smoking) is only harmful to young children Correct response: False	209 (75.4)	42 (15.2)	26 (9.4)
Nicotine causes cancer in human Correct response: Disagree	33 (11.9)	184 (66.4)	60 (21.7)
Knowledge category	***n* (%)**	**Cut off mark**	
Poor knowledge	203 (73.2)	< 60	
Good knowledge	74 (26.7)	≥ 60	
Score distribution	***n* (%)**		
< 40	28 (10.1)		
50–59	175 (63.2)		
≥ 60	74 (26.7)		

Pharmacy Students' Attitudes Toward Smoking and Smoking Cessation

Two hundred and three (73.2%) respondents agreed that 'it is pharmacists' responsibility to help their patients quit smoking.' Majority 226 (81.6%) respondents agreed that 'pharmacy students need more training on how to counsel patients on smoking cessation' (Table 3).

Table 3: Pharmacy students' attitude towards smoking and smoking cessation.

Attitude statement (*n* = 277)	**Agree *n* (%)**	**Neither agree nor disagree *n* (%)**	**Disagree *n* (%)**
It is pharmacists' responsibility to help their patients quit smoking	203 (73.2)	45 (16.3)	29 (10.5)
Patients already know they should quit smoking. It does not make sense to remind them of this	54 (19.5)	62 (22.4)	161 (58.1)
It is useless to advise patients to quit smoking	66 (23.8)	25 (9.1)	186 (67.1)
It is best to use pharmacists time on other things rather than counselling patients to quit smoking	25 (9.0)	51 (18.4)	201 (72.6)

(continued on next page)

Table 3: (*continued*)

Attitude statement (*n* = 277)	**Agree *n* (%)**	**Neither agree nor disagree *n* (%)**	**Disagree *n* (%)**
The pharmacists have a responsibility not to smoke and set a good example for their patients	204 (73.6)	22 (7.9)	51 (18.5)
Regarding smoking cessation, medical advice has little effect on the behaviour of patients	116 (41.9)	64 (23.1)	97 (35.0)
Pharmacy students need more training on how to counsel patients on smoking cessation	226 (81.6)	17 (6.1)	34 (12.3)
The consumption of tobacco is a matter of personal decision in which the doctor should not intervene	27 (9.7)	26 (9.4)	224 (80.9)
If a pharmacist wishes, he/she should be able to refuse to care for a patient just because he/she does not quit smoking	18 (6.5)	38 (13.7)	221 (79.8)

Attitude category	***n* (%)**	**Cut off mark**
Negative attitude	125 (45.1)	< 80
Positive attitude	152 (54.9)	≥ 80

Score distribution	***n* (%)**
< 50	27 (9.7)
50–79	98 (35.4)
> 80	152 (54.9)

Awareness of Smoking Cessation Products among Pharmacy Students

Less than one-tenth (27 or 9.7%) of the respondents had learned about available options for smoking cessation, while nicotine gum (13 or 48.1%) was the most identified product among the students (Table 4).

Table 4: Awareness of smoking cessation products among pharmacy students.

Variables	***n* (%)**
Have you ever been taught on available options to quit smoking?	
Yes	27 (9.7)
No	250 (90.3)
If yes, which one? (*n* = 27)	
Nicotine gum	13 (48.2)
Nicotine patches	7 (25.9)
E-cigarette	4 (14.8)
Herbal mixture for smoking cessation	2 (7.4)
Nicotine sublingual tablets	1 (3.7)

DISCUSSION

Poor knowledge of smoking and smoking cessation was reported in more than three-quarters of our respondents. Furthermore, a knowledge gap on the awareness of smoking cessation products was documented among the pharmacy students and majority of the students reported that the smoking cessation training content of their curriculum is not satisfactory. The gap in awareness and knowledge might signify the necessity for awareness creation as well as advocating teaching pharmacy students smoking cessation. This finding is similar to a study conducted in a university community (Abikoye *et al*. 2013) and among pharmacy students in the University of Lagos in Nigeria (Aina *et al*. 2009), where the awareness level of smoking cessation products was low. Various studies in the literature had reported the inadequate knowledge of smoking cessation and tobacco dependence treatment among healthcare students (Fiore *et al*. 2008; Ferry *et al*. 1999; Raupach *et al*. 2009; Springer *et al.* 2008; Grassi *et al*. 2012).

A possible explanation for the low awareness of the products might be a deficient pharmacy school curriculum on smoking cessation products, non-availability of the products in the pharmacies, and cost implication of the product in Nigeria. Studies conducted in Germany, Italy, and England among medical students revealed that the knowledge of smoking epidemiology was also unsatisfactory (Raupach *et al*. 2009; Springer *et al*. 2008; Grassi *et al*. 2012). A study conducted among community pharmacists in the Ibadan metropolis revealed that 62.5% of the community pharmacists had poor knowledge regarding smoking cessation and tobacco harm reduction (Akande-Sholabi and Adebisi 2021).

The literature encourages the inculcation of tobacco cessation in the curricula of undergraduate future health providers (FDI/WHO 2005). Studies have also shown that healthcare professionals who do not receive formal training on smoking cessation are less likely to have positive impacts on quitting rates than those who are formally trained (Emmons 1999; Lancaster *et al.* 2000). Tobacco cessation service is an essential public health service rendered by pharmacists globally (Akande-Sholabi and Adebisi 2021). To deliver these services effectively and with much-needed impacts, incorporation into the pharmacy curriculum is advocated (El Hajj *et al*. 2018).

Overall, our respondents had a positive attitude towards smoking cessation. Majority of our respondents advocated for more teaching on how to advise patients on smoking cessation and most of them believed that pharmacists should not smoke and should be a role-model to their patients. Although majority of the student shows anti-smoking attitude, about half of the students agreed that professional counselling has little influence on smoking cessation. This can be compared to a similar study carried out in Argentina, where 30.9% agreed that professional counselling has little influence on smoking cessation (Salgado *et al*. 2017).

Limitations

Our study is not without its limitations. The respondents could have either over-or under-reported their responses, thus a possibility of response bias. The study year of the respondents can influence their knowledge even when they have never been taught, thus a probability of subject bias. In addition to this, the study was conducted in one pharmacy school, therefore, there is a need for caution in generalising the findings to other pharmacy students in Nigeria.

CONCLUSION

There is a deficit in smoking cessation knowledge among our respondents. However, overall, the pharmacy students showed a positive attitude towards smoking cessation. There is a need for the inclusion of smoking cessation strategies and procedures in the pharmacy school curriculum, to equip future pharmacists with the knowledge and skills to render this public health service.

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