

Substance Abuse among Adolescents: 2. Prevalence and Patterns of Cigarette smoking among senior secondary school students in Abraka, Delta State, Nigeria.

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ABSTRACT : Cigarette smoking is an important health hazard and a major preventable cause of morbidity and mortality. More young people are getting involved in tobacco use in Nigeria. This is of great concern.

This study determined the prevalence and patterns of Tobacco use among Senior Secondary School Students in Abraka, Delta State, Nigeria. Four randomly selected schools and 456 students were surveyed in a cross-sectional study with a structured questionnaire that addressed the objectives of the study. Data was analyzed with SPSS Version 20. Response rate was 87.7%. Majority (97%) of the respondents fell within the age group of 11-20 years; males (52%); Christians (95%) and 77% lived with both parents. Smoking prevalence rate was 7% with more male students being involved. Initiation age was 12-15 years (66%); 50% were current smokers; 64% smoked at weekends. Popular venues for smoking were at parties (68%), in the bush (43%) and home of friends (25%). Majority (46%) smoked 1 stick of cigarette per day. Relief of stress (65%) was the major reason for indulgence; Specialization was associated with smoking habit whereas Gender and Religion were not. Although smoking prevalence seems low, school-based preventive awareness programs are strongly recommended to reverse the trend.

Key Words: Adolescents, Patterns, Prevalence, Substance abuse, Tobacco.

I. INTRODUCTION

Cigarette smoking is an important health hazard and a major preventable cause of morbidity and mortality [1, 2]. Despite the fact that the hazards of smoking are well known, the number of young people who take up cigarette smoking still seems to be on the increase particularly in developing countries[3,4] Cigarette smoking is the commonest form of tobacco use and in developed countries accounting for at least 80% of overall tobacco consumption [3]. While several studies in developed countries had shown a decrease in cigarette smoking among the older age group, it is not the same in the younger populations. In developing countries, the prevalence among the youth seems to be on the increase [3]. In ranking addictive drugs, nicotine was determined to be more addictive than heroin, cocaine, alcohol, caffeine and marijuana [4]. Moreover, early onset of smoking has been shown to lead to more active years of smoking with its health hazards. It is therefore important for researchers to study cigarette smoking among the youth and the factors that lead to its onset. This is also in line with WHO's demand for more efforts and cooperation among health advocates and practitioners in reversing the current trend in tobacco use [5]. In Nigeria, industrialization and increased exposure to western life have contributed to the spread of substance use, with alcohol and tobacco acting as "gate ways drugs" to the use of other substances like cocaine, heroin, amphetamine, inhalants and hallucinogens [6]. The objectives of this study are to determine the prevalence and patterns of tobacco use among Senior Secondary School Students in Abraka, Delta State, Nigeria.

II. METHOD

Study Site

Abraka is a town in Delta State, South-South of Nigeria. The town lies on latitude 5° 46' 54" north of the equator and longitude 6° 05' 59" east of the Greenwich meridian. Abraka is one of the 25 Urhobo kingdoms in Delta State, Nigeria. It is located in Ethiope East Local Government Area of Delta State. It is mostly known as a university town and has the main campus of the Delta State University located here.

The total number of secondary schools in Abraka at the time of this study was 11. There are 3 state owned schools and 8 privately owned schools. All the schools were co-educational. The total number of secondary

school students in Abraka is estimated at 10,778 while the total number of senior secondary school students is 4,178 which is 38.8% of the total number of students. As at study time, two private schools were yet to admit students into senior secondary classes. The study was carried out between February and April, 2014.

Study Design

A cross-sectional study design was employed in the survey.

Study Population

The respondents were drawn from 4 senior secondary schools that were purposefully selected being relatively large and popular. These were Abraka Grammar School (AGS), Delsu Demonstration School (DDS), Aunty Rose Group of Schools (ARGS), and Erhimu Secondary School (ESS)

Study Sample

The sample size was determined using fisher's formula

$$N = \frac{Z^2 pq}{d^2}$$

Z = Standard normal deviation (1.96)

p = Population in the target population estimated to have a

Particular characteristic (in this case, prevalence= 0.51) (Abiodun O.A et al, 1994)

q = 1.0 – p

d = degree of accuracy required (0.05)

$$N = \frac{1.96^2 p (1-p)}{0.05^2}$$

$$N = \frac{1.96^2 \times 0.51 \times 0.49}{0.05^2}$$

$$= \frac{0.9600}{0.0025}$$

$$= 384 \approx (400)$$

The calculated sample size of approximately 400 was further increased to 456 to make up for cases of attrition. Respondents were selected by multistage random sampling technique. Applying equal allocation technique, 114 questionnaires were allotted to each of the four schools. At each of the four selected schools, the students were first stratified into the three levels – SS1, SS2 and SS3. Also, with equal allocation technique, 38 questionnaires were allotted to each of the three levels. Each level was further stratified into Art and Science classes and 19 questionnaires were allotted to each class.

Consenting students were recruited consecutively as they presented till the sample size requirement was met.

Data Collection Tool

A structured questionnaire containing two sections (A and B) and forty six questions in all was used to collect data. Section A dealt with personal information like sex, age, class, religion and family structure while Section B contained questions on smoking habits.

The survey was conducted within a two day period in each of the selected schools, and a total of 8 visits were made to the schools. The completion of the questionnaire was carried out during a class hour and respondents were not allowed to confer with one another during the exercise

Anonymity was strictly ensured as the respondents were not required to write their names. To further reassure respondents about confidentiality, only investigators and not class teachers supervised the completion of the questionnaires.

Full explanations were provided for respondents who had problems in understanding some of the questions after which consent was obtained.

Validity

The instruments were peer-reviewed and also pre-tested to ensure face and content validity.

Data Analysis

Data from all four schools were pooled together and analyzed using SPSS version 20. Simple frequency tables were generated as well as cross-tabulation to check for levels of statistical significance at $p < 0.05$.

Ethical Clearance

Permission to conduct the survey was sought and obtained from the school principals and the students.

III. RESULTS

A total of 456 questionnaires were collected from the secondary schools but only 400 were considered valid for data analysis giving a response rate of 87.7%. The socio-demographic Characteristics of the respondents are shown in TABLE 1. Majority (97%) of the respondents fell within the age group of 11-20 years and there were slightly more males (52%). Majority (95%) of the respondents were Christians and the respondents were about equally distributed into SS1 (35%), SS2 (32%) and SS3 (33%). There was also near equal distribution into Science (49%) and Art (51%) classes. Majority of respondents (77%) lived with both parents while 23% lived with a single parent.

Table 1. Demographic Characteristics of respondents

Variables	Frequency (n =400)	Percentage (%)
Gender		
Male	208	52
Female	192	48
Age (years)		
11-15	192	48
16-20	196	49
>20	12	3
Religion		
Christian	380	95
Muslim	20	5
Class		
SS1	140	35
SS2	128	32
SS3	132	33
Class(specialization)		
Science class	196	49
Art class	204	51
Nature of family		
lives with both parents	308	77
lives with a single parent	92	23

A total of 7% of respondents had ever indulged in tobacco smoking with 50% currently smoking. Study recorded age of initiation of 0-11 years (17%); 12-15 years (66%), 16-20 years (17%) ; 64% smoked at weekends and anytime of the day; a quarter smoked at night. The popular venues for smoking were at parties (68%), in the bush (43%) and home of friends (25%). Majority (43%) smoked any brand of cigarette available; 46% smoked 1 stick of cigarette per day. Pocket money (65%) was the major source of funds for the habit followed by friends (21%) Regarding the reasons for smoking, majority smoked because it relieved them of stress (65%) and also because it helped them to forget about their worries (43%). Parents of 43% of respondents did not know their wards ever smoked whereas 57% of respondents could not tell if their parents were aware of their smoking habit as at study time. See TABLE 2.

Table 2: Tobacco Use Prevalence and Patterns

Variables		Frequency	Percentage (%)
Ever Smoked before?	Yes	28	7
	No	372	93
Gender	Male Smokers	20	71
	Female Smokers	8	29
Age of onset of smoking	0-11	4	17
	12-15	16	66
	16-20	4	17
Do you still smoke?	Yes	14	50
When do you smoke?	Everyday	20	71
	Twice weekly	2	7
	Thrice weekly	6	21
	During the day	3	11
	At night	7	25
	Any time	18	64
Where do you smoke?	At home	1	4
	In school	0	0
	At parties/ceremonies	19	68
	Home of friends	7	25
	In the bush	12	43
	Others	8	29
No of sticks smoked per day.	1	13	46
	2	3	11
	>2	12	43
Source of funds	Pocket money	18	65
	Friends	6	21
	School fees	0	0
	Others	4	14
Cigarette Brand preferred	B/Hedges	6	21
	London	8	29
	St. Morris	2	7
	Any available	12	43
Why do you smoke?	Relieves me of stress	18	65
	Helps me forget my worries	12	43
	Helps me read better	4	14
	Others	8	29
Do your parents know you smoke?	Yes	0	0
	No	12	43
	Don't know	16	57

The effect of socio-demographic characteristics on smoking habit is shown in TABLE 3.

Among males, 9.6% smoked; among females, 4.2% smoked. There was, however, no significant association between gender and students' smoking habit ($X^2 = 1.129$; $p = 0.288$).

Among the Christians, 7.4% smoked; none of those who indicated to be Muslims stated their smoking status. There was no significant relationship between religion and students' smoking habit ($X^2 = 0.249$; $p = 0.618$).

About 6.1% and 7.8% of students in the Science and Art class respectively smoked and chi square analysis showed a significant relationship between educational specialization of students and smoking habit ($X^2 = 4.223$; $p = 0.040$)

Table 3. Cross tabulation with student's Demographic data

Ever Smoked?	YES	NO	TOTAL	X^2	df	P value
Gender						
Male	20 (9.6%)	188 (90.4%)	208 (100%)	1.129	1	0.288
Female	8 (4.2%)	184 (95.8%)	192 (100%)			
Religion						
Christian	28 (7.4%)	352 (92.6%)	380 (100%)	0.249	1	0.618
Muslim	0 (0%)	20 (100%)	20 (100%)			
Specialization						
Science	12 (6.1%)	184 (93.9%)	196 (100%)	4.22	1	0.040
Art	16 (7.8%)	188 (92.2%)	204 (100%)			

IV. DISCUSSION

The major thrust of this study was to evaluate the prevalence and patterns of tobacco use among senior secondary school students and assess some of the situational contexts of tobacco use. The survey revealed that majority (97%) of the respondents fell between the 11 – 20 years age group which is considered to be within the adolescent age group [7, 8]. A male to female ratio of 1.1:1 was recorded in this study. This is at variance with other studies conducted in Oshogbo, Ibadan and Ilorin, all in Nigeria, where higher male/female ratios of 1.5:1; 1.4:1; and 1.3:1 were reported respectively [8,9]. There were more Christians (95%) than Muslims (5%) in the study population, a true reflection of the general population of Delta State. However, this is contrary to the report of the Nigeria demographic and health survey (2003) where 51.8% and 48.2% of Nigerians were Muslims and Christians respectively [10]. Majority of the respondents (77%) lived with both parents. This is slightly higher than the general Nigerian population where it is reported that only 59.4% of parents are married whilst 2.5% are divorced/separated [11]. The results indicated that the prevalence of tobacco smoking was low (7%) among Senior Secondary School students in Abraka and tallies with some other studies [12, 13]. Studies have reported varied smoking prevalence rates of between 3.4% and 61.5%, some of which were studies conducted in similar peri-urban communities like those in this study [14-18]. Admittedly the figures obtained for tobacco use in this study may appear low, this figure is high for a developing nation like ours that is already burdened with the problem of HIV/AIDS, Malaria as well as Tuberculosis; the additive effect of tobacco-related disease is definitely not welcome [19-21]. Further, tobacco use is an important risk factor for a number of non-communicable diseases many of which are among the leading causes of premature mortality globally [22]. Tobacco associated deaths exceeds 4.5 million annually, thus surpassing deaths caused by malaria, tuberculosis, and maternal causes [23]. It is therefore imperative to seek for all means to prevent adolescent smoking initiation. This is even more pertinent because as high as 50% are current smokers in this study population.

Two surveys among adolescents conducted in Oshogbo, southwest Nigeria and South Dakota, US, however, reported much lower rates of current smokers of 14.3% and 6% respectively. [8, 24]. An even lower rate of 3% was reported in a study conducted amongst senior secondary school students in urban communities in south western Nigeria [25]. The majority (66%) of ever smoked in this study initiated the habit between 12 – 15 years of age. It has been reported that children smoke their first cigarette while attending primary school and that smoking is most likely to begin during adolescence (15 ± 4), when various factors, such as peer pressure, family influence, social class and other psychosocial determinants, influence an individual to start and maintain the habit [26]. Further, studies have also noted that smoking begins early. According to the Centre for Disease Control, more than 15% of adolescents between the ages of 12 and 18 already smoked cigarette regularly and 11% of high school students have smoked a whole cigarette before age 13 [27]. Other studies have reported age of initiation of 15-19 years [12]; 13-15 years [1]; 10-14 years [28]. Majority smoked everyday in this study. This trend was recorded in other studies conducted in similar peri-urban cities in Nigeria (Oshogbo and Ilorin) where 35% and about 50% of current cigarette smokers engaged in daily use [8, 29]. Further, majority in this study smoked at anytime of the day but a quarter of them smoked at night time under the cover of darkness.

Smoking was most prevalent at parties and other social engagements. Most of these social ceremonies take place all through the night and they afford ample opportunities for the youths to indulge in smoking and other vices under the cover of darkness, away from home and from the watchful eyes of parents and guardians. A number of the smokers did so in the bush and at the homes of friends. Thus, 43% of the ever smoked were certain their parents did not know about their smoking habit. As at the time of the study, the students could be considered to be light smokers; most of them smoked 1 – 2 sticks of cigarette per day. This is similar to a study carried out in Sokoto metropolis, north western Nigeria [12]. The light smoking rate recorded in this study may be a result of under-reporting. Other studies have, however, reported smoking rates of 8-10 sticks of cigarettes per day [15, 30] As for this cohort of respondents found in this study, there is a distinct possibility for heavier smoking during social engagements that span throughout the night, which happen infrequently. Nevertheless, nicotine has been found to be rapidly habit - forming. In ranking addictive drugs, nicotine was determined to be more addictive than heroine, cocaine, alcohol, caffeine and marijuana [4] Therefore, the possibility is there for these students to be hooked on the habit and progress to heavy adult smokers. The fact that they are light smokers for now may be due to financial constraints; with greater financial freedom, it is possible that they may progress to be heavy smokers in future if nothing is done to stop the habit. It could well be that majority of these adolescents are still experimenting with cigarettes. This is therefore a very appropriate time to dissuade them from continuing with the habit before they become addicted. This calls for aggressive health education programs among these adolescents to reduce uptake of cigarette smoking. As it were, most of the smokers in this study had no brand preference and would smoke any brand of cigarette that was available. This portends danger as it is a sign of desperation and an aggressive urge to smoke. Also, at their age and degree of financial freedom, it is not surprising that most of them have no special brand preference. For them, the commonest sources of money were through the pocket (feeding) monies given to them and through their friends. This may affect their nutritional and overall health status as monies intended for feeding are diverted to smoking which will further decimate their health. This study showed that more males (71%) than females (29%) ever smoked cigarettes. This agrees with other studies that reported that current, past and lifetime use of tobacco occurred significantly more commonly among the males [4, 25, 31]. Studies have indicated that, in general, drug abuse was commoner in males [8, 32]. It has been posited that this may be because males are more likely to be more adventurous than their female counterparts and they are more likely to be experimenting during their adolescent years. Females on the other hand enjoy more supervision of parents/guardian because of the fear that their engagement in social activities could predispose them to being wayward [4]. There is however no significant association between Gender and smoking habit of respondents in this study similar to other reports [12]. In this study, the respondents were predominantly Christians (95%) and the others (5%) were Muslims. All ever smoked were Christians; no Muslim student stated his/her smoking status. Strange finding, but literature reports indicate that, even with promise of confidentiality, some people still refuse to reveal their smoking status [12]. No significant association was recorded between religion and smoking status in this study which is at variance with studies that have reported a correlation between religious association and reduced substance use/abuse including smoking [31, 33-35]. The two religions have been posited to influence people's behavior and both are intolerant of alcohol and tobacco use [33]. A study done in Ilorin, Nigeria among undergraduate students also showed a correlation between lack of religiosity and the use of alcohol, cigarette and cannabis. There was a correlation between belonging to the Christian religion and reduced use of these substances [34]. Studies in Tennessee, USA on 217 adolescents aged 12-19 years showed that as attendance of religious service increased, alcohol and other drug abuse decreased [31]. Respondents in this study were almost equally distributed into the Art and Science classes. However, there were more ever smoked in the Art Class (57%) than Science Class (43%) and there was a significant association between class specialization and smoking habit. The basis for this is yet unclear. Could this be as a result of curriculum differential between the classes? This requires further investigation to ascertain and to inform on specific intervention strategies. Studies have shown a correlation between knowledge of some effects of cigarette smoking and smoking status among adolescents [12]. In this study, the reasons adduced for smoking ranged from stress relief, forgetting their worries and to be able to read better in order to enhance their academic performance. In the literature, the most frequent reasons for smoking the very first time were to imitate their smoker friends, out of curiosity and need to initiate a smoking relation. This is said to reflect the inquisitive nature of adolescents which makes them vulnerable to peer influence, while continuous smoking resulted from search for pleasure, reducing stress and a false sense of better academic performance [36]. Wanting to be attractive is said to assume great importance in adolescence, and this has been linked to tobacco use initiation among other behaviors [37].

V. CONCLUSION

The prevalence of smoking among adolescents in this community is generally low from this study. Majority of the students initiated the smoking habit at an early age and half of them were current smokers. They were light smokers presumably because of financial constraints and/or as a result of under-reporting. They

smoked most frequently at parties and other social ceremonies most of which took place throughout the night. Most ever smoked had no brand preference. Gender and religion were not associated but class specialization was associated with smoking habit. Majority smoked to relieve stress, forget their worries and to enhance their academic performance. The contextual situation for the initiation and maintenance of tobacco smoking habit among these adolescents is of grave concern and calls for strategies to curb the trend. Early onset of smoking leads to more active years of smoking with its health hazards. This demands more efforts and goal-directed strategies to reverse the current trend in tobacco use. Therefore, school-based preventive awareness programs are highly recommended to reverse the trend.

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