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Correlates of Tobacco and Marijuana Use among Urban Dwellers in Enugu, Nigeria

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Abstract

Introduction: Tobacco and marijuana use is a public health challenge all over the world and especially in Sub Saharan Africa. The combination of low socioeconomic status and substance use can be described as a social and economic disaster for many poor families of Africa. While majority of studies concentrated on cigarette smoking, few studies in Nigeria has been conducted on non-smoke forms of tobacco. The burden of marijuana abuse is also rising in the Nigeria. Similar to cigarette smoking, cannabis use is more common among males. Knowledge of the pattern of tobacco and cannabis use in the community is important considering the public health implications. The aim of this study was to determine the prevalence of tobacco (cigarette smoking and snuff) and cannabis use among adults in an urban communities Enugu, southeast Nigeria. **Methods:** This was a cross-sectional descriptive study conducted in urban slum settlements in Enugu, the capital of Enugu State, southeast Nigeria. Using a semi structured questionnaire, we collected data selected socio-demographic characteristics, including tobacco use and cannabis use in the last 30 days. The study was conducted between August and December 2013. For database management and statistical analyses, we used the SPSS version 23. **Results:** The total number of individuals recruited in the study was 1572; 844 (52.8%) females and 728 (45.5%) males with a male to female ratio of 0.9:1. Tobacco was used by a total of 270 (17.2%) individuals within the last 4 weeks and marijuana by 23 (1.5%) of the population. Overall, 280 (17.8%) used either one or both tobacco and marijuana. While snuff was

predominately used from 60 years and above, cigarette smoking peaked at 30 - 39 years and marijuana use peaked at a younger age of 20 - 29 years. Cigarette smoking positively correlated with male gender (male 1, female 0) and alcohol use (Yes 1, No 0). $P < 0.01$ in both cases. Snuff use in addition to positively correlating with gender and alcohol use, it also positively correlated with history of diabetes (Yes 1, No 0). Marijuana use correlated with male gender and use of alcohol. **Conclusion:** The prevalence of cigarette smoking (5.5%), snuff (11.6%) and marijuana use (1.6%) was found in an urban settlement in Enugu. Predictors of tobacco use were older age, male gender and alcohol use. Public health intervention programs should reemphasize the health-related issues associated with these substances and the need to quit using them.

Keywords

Tobacco, Cigarette, Snuff, Alcohol, Marijuana, Nigeria

1. Introduction

Tobacco and marijuana use is a public health challenge all over the world and especially in Sub Saharan Africa (SSA) [1] [2] [3]. The problem of substance abuse in the region has compounded an already existing burden of infectious and non-infectious diseases. The combination of low socioeconomic status and substance use can be described as a social and economic disaster for many poor families of Africa. Whereas some substances such as alcohol and tobacco have always been traditionally accepted especially among adults, their use has reached epidemic proportions in young Nigerians. The uses of other substances such as marijuana, cocaine and amphetamines have also grown disproportionately over the years [3] [4] [5] [6] [7].

Tobacco is risk factor for many acute and chronic diseases nevertheless, about 1.1 billion people use tobacco worldwide and about 7 million die yearly of tobacco related illnesses [8] [9]. The burden tobacco use and morbidity is rising in developing countries especially in sub-Saharan Africa [1] [2] [6] [7]. A recent systematic review on the index problem has reported a steady increase in the sub-continent [1]. It is estimated that the in the continent from 12.8% to 18.9% by the year 2025 [2].

The World Health Statistics report of 2017 showed that the highest prevalence of smoking in SSA was 55% (males in Lesotho) and the lowest 0.2% (females from Niger) [10]. Similar to many other countries of the world, tobacco smoking in sub-continent is a predominantly a male dominated problem across all socio-economic strata [1] [2] [4] [5] [6] [11]. In a review of 26 papers from 13 countries spanning a total 8 years, Brathwaite *et al.* [2], the prevalence of smoking ranged from 1.8% in Zambia to 25.8% in Sierra Leone and was consistently higher in men compared to women in all studies. The problem of smoking is in-

creasing among adolescents in SSA. In a cross sectional school based survey in Khartoum State the prevalence of current cigarette smoking was 13.6% [12]. Studies in Nigeria have also reported high prevalence of smoking among adolescents [13] [14] [15] [16]. Urban rural differences in smoking habits exist and vary between countries and regions in SSA [1] [2] [3].

The prevalence and pattern of tobacco use reported in several studies in Nigeria have shown a consistent trend: significant higher rate of smoking among males, urban-rural differences, high exposure at an early age, easy accessibility and poor understanding of the risk associated with the substance [3] [5] [6] [7] [11] [13] [15]. In Nigeria, the overall prevalence of cigarette smoking was estimated to be 17.4% in males and 1.1% in females [10]. Obvious regional differences exist in the prevalence of smoking and use of other forms of tobacco in Nigeria. In a national survey of substance abuse in Nigeria the lifetime, 1-year and 30-day prevalence of smoking were 12.2%, 6.4% and 5.3% respectively with the highest prevalence in south eastern part of the country (15.7%) [3]. The prevalence of smoking among undergraduate students in various universities in Nigeria were similar to population-based studies possibly because of the age distribution of smokers which is favor of the young [5] [11] [17] [18]. In university of Ilorin, the prevalence rate of current cigarette smoking was 5.7% and lifetime smoking was 17.1% [11]. It has been estimated that the majority of smokers start smoking as early as in their teens most of whom were influenced into smoking by peer pressure and commercial advertisements [11] [19]. The mean age of first exposure to cigarette among university students suggest that most start people start smoking in secondary schools [11]. WHO statistics suggest that 68.9% of youth in the African Region bought cigarettes in a store and were not refused purchase because of their age [7]. There is some evidence that this may be also be related to religious, social and psychological reasons [20] [21] [22].

Few surveys in Nigeria has been conducted on non-smoke forms of tobacco. Of this form of tobacco, snuff is the most frequently used especially in rural areas and among older individuals. Non-smoke tobacco is usually considered culturally acceptable in Igbo land especially among males. The national prevalence of lifetime prevalence of non-smoke tobacco in Nigeria is 8.2% and 18.5% in South-Eastern part of the country [3]. The 30-day prevalence was 4.1% (rural (8.4%) vs urban (8.0%) areas). The gender distribution of non-smoke use is similar to cigarette smoking. In Madagascar, reported the prevalence of non-smoke tobacco use was as high as 7% among adolescents aged 13 - 15 years [23].

The burden of marijuana abuse is also rising in the Nigeria and has been associated with certain youthful age and certain forms of music and lifestyle hence the high rate of use among undergraduates and artisans in Nigeria [3] [4] [5] [17] [18]. Apart from alcohol and cigarette, marijuana is the most popularly used drugs among young Nigerians possibly because of its cost and availability as well ease of cultivation. Based on the review of a total of 38 the pooled prevalence of lifetime cannabis use among medical students was 31.4%, past-year use

17.2%, and past-month use was 8.8% with higher rates among men. The lifetime, 1-year and 30-day prevalence rates of cannabis use in Nigeria were 6.6%, 2.6% and 1.8% respectively especially in Urban areas [3]. Studies from tertiary institutions have reported a consistent moderate to high rates of marijuana use [5] [17] [18] [19]. Even among secondary schools the use of marijuana as high as 9.4% has been reported. Similar to smoking, cannabis use is more common among males [25] [26]. Knowledge of the pattern of tobacco and cannabis use in the community is important considering the public health implications. Information about other forms of tobacco use is scarce from South East Nigeria hence the need for the index study. The aim of this study was to determine the prevalence of tobacco (cigarette smoking and snuff) and cannabis use among adults in an urban communities Enugu, south east Nigeria.

2. Methods

This was a cross-sectional descriptive study conducted in an urban slum settlements in Enugu, the capital of Enugu State, south east Nigeria. The adult population of the settlements was estimated to be around 7000 - 9000 (based on church and local records). The two settlements were selected purposively because of their relatively isolated location. The inhabitants were surveyed between August and December 2013. This study was approved by the ethics committee of the University of Nigeria Teaching Hospital Ituku/Ozalla, P M B 01129 Enugu. No. NHREC/05/01/2008B-FWA00002458-1RB00002323.

3. Study Protocol

Using a semi structured questionnaire we collected data selected socio-demographic characteristics, lifestyle behaviors and medical history. Data on tobacco and marijuana was also collected using a semi-structured questionnaire (See **Appendix**), specifically designed by the investigators after a review of the relevant literature [1] [2] [3] [4] [5]. The study was preceded by sensitization meetings in the communities. Participants were interviewed by teams of research assistants using the research questionnaire. All consecutive consenting adults 18 years and above were included in the study, whereas the exclusion criteria were refusal to participate and cognitive decline.

The questionnaire sought to elicit data on substance use with emphasis on tobacco and marijuana use in the last 30 days. Estimated amount of tobacco and marijuana used could not be calculated and was not included in the index study. Tobacco use was categorized into cigarette and snuff, while marijuana was only smoked.

Cases of hypertension, diabetes, epilepsy and other medical conditions were based on the reported medical history and/or clinical evaluation of the subjects. Current alcohol use was defined as the use of any form of alcohol beverage within the past 4 weeks. Level of education was the individual's highest educational (formal) attainment based on the Nigerian school system. Occupation was

defined as the major source of income and/or the occupation that takes more than 50% of the individuals working hours.

Sample size was estimated using the Taro Yamane formula [27], N = N/1 + N(e)^2. Where: n = required sample size, e^2 = error limit and N = estimated adult population in both settlements.

N = estimated population of the community (9000), e = 0.05.

N = 9000/9000 × 0.0025 = 9000/22.5 = 400.

Statistical Methods

For database management and statistical analyses, we used the SPSS version 23 (IBM Corporation, New York, USA). Data were presented in Tables 1-3 and Figure 1, Figure 2. For continuous variables, mean values and standard deviation were calculated. Rates were expressed as percentages. Categorical values were compared using the Chi Square test. Mean age was compared using the independent t-test. In all, p value of <0.05 was regarded as statistically significant. Conclusions were drawn at 95% confidence interval.

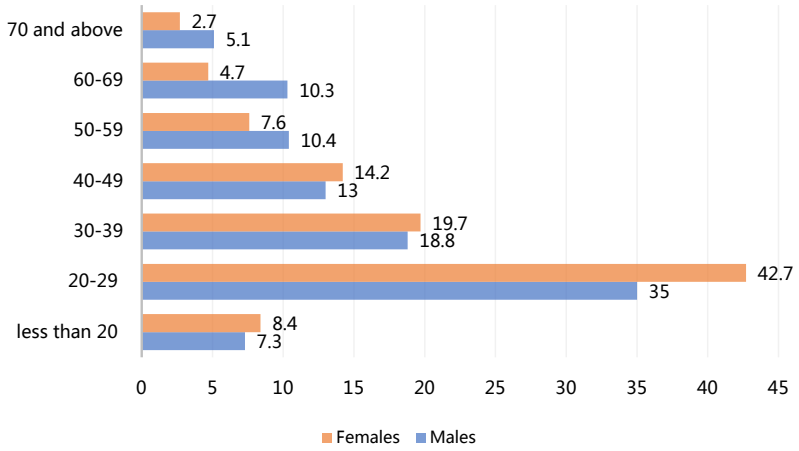

Figure 1. Age and gender distribution of the participants.

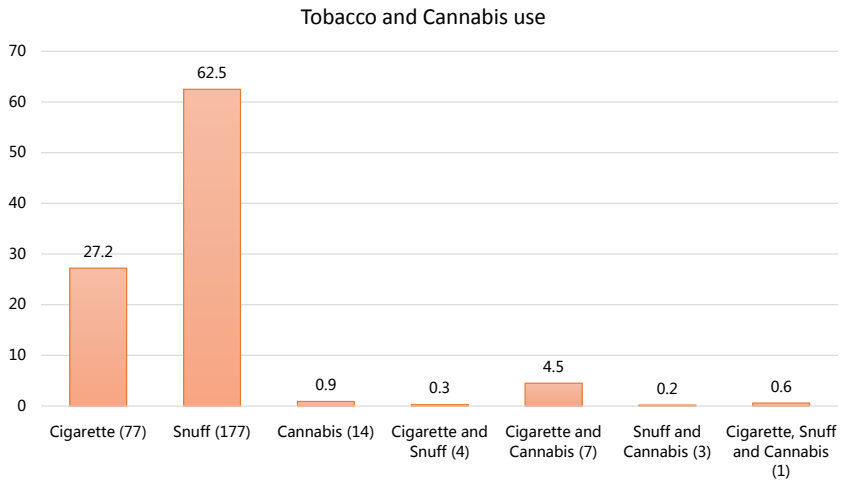

Figure 2. Distribution of Tobacco and Cannabis (Marijuana) use.

Table 1. Characteristics of participants.

Characteristic	Female	Male	Total	P-value
N	844 (52.8)	728 (45.5)	1572 (100)	<0.01
Age, years, (sd)	33.4 (13.6)	37.6 (16.4)	35.3 (15.1)	<0.01
Age group	-	-	-	
<20 years	71 (8.4)	53 (7.3)	124 (7.9)	
20 - 29 n (%)	360 (42.7)	255 (35)	615 (39.1)	
30 - 39 n (%)	166 (19.7)	137 (18.8)	303 (19.3)	
40 - 49, n (%)	120 (14.2)	95 (13)	215 (13.7))	
50 - 59 n (%)	64 (7.6)	76 (10.4)	140 (8.9)	
60 - 69 n (%)	40 (4.7)	75 (10.3)	115 (7.3)	
≥70 n (%)	23 (2.7)	37 (5.1)	60 (3.8)	<0.01
Level of Education	-	-	-	-
None n (%)	2 (0.2)	3 (0.4)	5 (0.3)	
Primary, n (%)	172 (20.4)	159 (21.8)	331 (21.1)	
Junior Secondary n (%)	122 (14.5)	78 (10.7)	200 (12.7)	
Senior Secondary n (%)	546 (64.7)	485 (66.6)	1031 (65.6)	
Tertiary n (%)	2 (0.2)	3 (0.4)	5 (0.3)	0.68
Occupation	-	-	-	-
Students	56 (6.6)	64 (8.8)	120 (7.6)	
Artisans	48 (5.7)	35 (4.8)	83 (5.3)	
Business	325 (38.5)	184 (25.3)	509 (32.4)	
Office workers	242 (28.7)	282 (38.7)	524 (33.3)	
Farmers	138 (16.4)	117 (16.1)	255 (16.2)	
Retired	20 (2.4)	34 (4.7)	54 (3.4)	
Unemployed	7 (0.8)	9 (1.2)	16 (1)	
Others	8 (0.9)	3 (0.4)	11 (0.7)	
Lifestyle	-	-	-	-
Current alcohol use, n (%)	487 (58.5)	553 (77.2)	232 (16.4)	<0.01
Medical History of	-	-	-	
Hypertension n (%)	91 (10.8)	68 (9.3)	159 (10.1)	0.35
Diabetes n (%)	21 (2.5)	31 (4.3)	52 (3.3)	0.05
Stroke n (%)	13 (1.5)	14 (1.9)	27 (1.7)	0.56
Family history of hypertension n (%)	104 (12.3)	71 (9.8)	175 (11.1)	0.12
Family history of stroke n (%)	16 (1.9)	20 (2.7)	36 (2.3)	0.26

P-values are for the sex differences.

Table 2. Distribution of Tobacco and marijuana use among the participants.

Characteristic	Cigarette	Snuff	Marijuana
Gender			
Males	77 (10.6)	126 (17.3)	18 (2.5)
Females	10 (1.2)	57 (6.8)	5 (0.6)
p-value	**<0.01**	**<0.01**	**<0.01**

Continued

Mean age	33.2 (9.8)	50 (14.6)	32.8 (10)
p-value*	**0.18**	**<0.01**	**0.41**
Age group			
<20 years	1 (0.8)	-	-
20 - 29 n (%)	37 (5.9)	18 (2.9)	14 (2.2)
30 - 39 n (%)	31 (10.1)	25 (21.5)	6 (1.9)
40 - 49, n (%)	11 (5)	47 (13)	3 (1.4)
50 - 59 n (%)	5 (3.5)	31 (21.7)	1 (0.7)
60 - 69 n (%)	3 (2.6)	46 (40)	1 (0.7)
≥70 n (%)	-	19 (31.1)	-
p-value	**<0.01**	**<0.01**	**<0.01**
Level of Education			
None n (%)	-	1 (20)	-
Primary, n (%)	15 (4.5)	75 (22.4)	4 (1.2)
Junior Secondary n (%)	11 (5.3)	35 (16.9)	2 (1)
Senior Secondary n (%)	62 (5.9)	75 (7.2)	19 (1.8)
Tertiary n (%)	-	-	5 (0.3)
p-value	**0.81**	**<0.01**	**0.85**
Occupation	-	-	-
Students n (%)	7 (5.8)	8 (6.7)	4 (3.3)
Artisans n (%)	3 (3.6)	5 (6)	-
Business n (%)	28 (5.5)	58 (11.4)	7 (1.4)
Office workers n (%)	32 (6.1)	55 (10.5)	8 (1.5)
Farmers n (%)	14 (5.5)	43 (16.9)	3 (1.2)
Retired n (%)	3 (5.5)	10 (18.5)	1 (1.9)
Unemployed n (%)	-	1 (6.3)	-
Others n (%)	-	3 (0.4)	-
Lifestyle			
Current alcohol use, n (%)	85 (97.7)	169 (92.3)	23 (100)
Medical History of			
Hypertension n (%)	8 (5)	33 (20.8)	1 (0.6)
Diabetes n (%)	3 (5.8)	15 (28.8)	-
Stroke n (%)	-	11 (6)	-
Total	87 (5.5)	183 (11.6)	23 (1.5)

*p-value for mean ages of user and non-users.

Table 3. Correlates and predictors of Tobacco use. (a) Correlates of cigarette, Snuff and Marijuana use; (b) Correlates of alcohol beverage and cigarette, Snuff and Marijuana use; (c) Predictors of tobacco use.

(a)

Variable	Cigarette r (p-value)	Snuff r (p-value)	Marijuana r (p-value)
Age	0.01 (0.63)	0.34 (<0.01)	−0.00 (0.94)
Gender	0.21 (<0.01)	0.16 (<0.01)	0.08 (<0.01)

Continued

Level education	0.02 (0.39)	−0.2 (<0.01)	0.02 (0.5)
Hypertension	−0.01 (0.76)	−0.1 (<0.01)	−0.02 (0.36)
Diabetes	0.00 (0.96)	0.1 (<0.01)	−0.02 (0.37)
Stroke	−0.03 (0.21)	−0.12 (<0.01)	−0.02 (0.52)
Alcohol	0.16 (<0.01)	0.2 (0.01)	0.09 (<0.01)

(b)

Variable	Cigarette r (p-value)	Snuff r (p-value)	Marijuana r (p-value)
Beer	**0.21 (<0.01)**	**0.21 (<0.01)**	**0.11 (<0.01)**
Gin	0.05 (0.08)	**0.05 (0.05)**	0.01 (0.63)
Stout	**0.05 (0.03)**	−0.03 (0.33)	0.02 (0.11)
Local brews	0.01 (0.81)	**0.05 (0.04)**	**0.05 (0.03)**

(c)

Variable	R^2 = 0.17 B (SE)	p-value
Age	0.01 (0.02)	<0.01
Gender	0.15 (0.02)	<0.01
Level education	−0.02 (0.1)	<0.04
Hypertension	0.01 (0.03)	0.83
Diabetes	0.02 (0.05)	0.72
Stroke	0.07 (0.07)	0.33
Alcohol	0.16 (0.02)	<0.01

4. Results

The total number of individuals recruited in the study was 1572; 844 (52.8%) females and 728 (45.5%) males with a male to female ratio of 0.9:1. The mean age of the participants was 35.3 (15.1) years with a range 18 to 90 years. The mean age (sd) of males was significantly higher than that of females (37.6 (16.4) and 33.4 (13.6) years respectively. $p < 0.01$). Most of the participants were aged 20 - 29 years however there was an even sex distribution with the age groups. The majority of the population attained secondary school education (junior-12.7% or senior-65.6%) at the time of the study. The bulk of the population were either office workers (33.3%) or were engaged in business (32.4%) (Table 1). About 16.4% (232) consumed alcohol in the preceding 4 weeks, most of whom were males 553 (77.2%) $p < 0.01$. Medical and family history are also shown in Table 1. Hypertension and family history of hypertension was the most reported cases 159 (10%) and 175 (11.1%) respectively.

Tobacco and Marijuana Use

Figure 1 shows that most of these people used snuff only 183 (67.8%) while 87

(32.2%) smoked cigarettes only. The distribution of tobacco and marijuana use is shown in Table 2, Figure 2. Tobacco (cigarette and snuff) was used by a total of 270 (17.2%) individuals within the last 4 weeks and marijuana by 23 (1.5%) of the population. Overall, 280 (17.8%) used either one or both tobacco and marijuana. Fifteen (5.8%) individuals used more than one substance especially cigarette and marijuana 7 (4.5%). Four (0.3%) smoked cigarettes and used snuff. The use of all these substances was much commoner in males. $p < 0.01$. The peak ages of using these substances are shown in Table 2. While snuff was predominately used from 60 years and above, cigarette smoking peaked at 30 - 39 years and marijuana use peaked at a younger age of 20 - 29 years. While most snuff users were retired and farmers, cigarette smoking was more evenly distributed among the different occupational groups. All marijuana users and about 16.1% (171) of snuff users drank alcohol with the preceding 4 weeks. The proportion of people with hypertension diabetes and stroke who used snuff were 20.8%, 28.8% and 6% respectively.

Table 3 shows the correlates and (Table 3(a) and Table 3(b)) and predictors of tobacco use (Table 3(c)). Cigarette smoking positively correlated with male gender (male 1, female 0) and alcohol use (Yes 1, no 0). $P < 0.01$ in both cases. Snuff use in addition to positively correlating with gender and alcohol use, also positively correlated with history of diabetes (Yes 1, no 0) and negatively with history of hypertension (Yes 1, no 0) and stroke (Yes 1, no 0). Marijuana use only positively correlated with male sex and use of alcohol.

Table 3(b) showed that the type of alcohol beverage consumed by the participants correlated differently with different types of tobacco cannabis. Drinking beer ($t = 0.21$, $p < 0.01$) and stout ($t = 0.05$, $p = 0.03$) positively correlated with cigarette smoking. In addition to beer, snuff use also correlated with drinking local brews ($t = 0.05$, $p = 0.04$). Significant predictors of tobacco use (cigarette smoking and snuff use) from this study were increasing age, male gender, lower level of education and use of alcohol (Table 3(c)).

5. Discussion

Tobacco and marijuana are some of the most commonly abused psychoactive substance in Nigeria after alcohol [3] [4] [5] [17] [18] [28]. Tobacco has far reaching health implications and is an established risk factor for many forms of cancer as well as chronic renal disease [29] [30] [31]. Tobacco-induced renal damage has been observed in both peoples with and without diabetes [31] [32] [33]. The current study determined the use of cigarette smoking, snuff and marijuana use in one of the surrounding settlements of Enugu metropolis in south east Nigeria. These substances are some of the commonest substances of abuse in most communities because of ease of access and low cost. While tobacco use is generally accepted traditionally, smoking and snuff use are perceived differently in most south east Nigerian communities; with snuff being generally more acceptable especially among older individuals. On the contrary marijuana use

has remained socially unacceptable and criminalized in the community where most marijuana users are regarded as misfits. With changing social habits and cultural norms, cigarette and marijuana use are likely to increase in the country.

The 4-week prevalence of tobacco and marijuana use in the index study were 16.9% (cigarette smoking 5.5% and snuff 11.6%) and 1.5% respectively. The majority of tobacco users used snuff alone-177 (62.5%) while 77 (27.2%) smoked cigarettes only. The use of tobacco and marijuana was much commoner in males. While snuff was predominately used from 60 years and above, cigarette smoking peaked at 30 - 39 years and marijuana-use peaked at a younger age of 20 - 29 years. Significant predictors of tobacco use from this study were increasing age, male sex, lower level of education and use of alcohol.

The prevalence of cigarette smoking in the index study is similar to a 30-day prevalence of 5.3% obtained for the South Eastern Nigeria in 2016 [3]. In that survey, the South-East (where the index study was conducted) gave a lifetime prevalence (15.7%). In a study from Ilorin, the prevalence of smoking among undergraduates most of whom who were in their twenties was 5.7% (males 7.7%, females 2.0%) [1] [17]. This is similar to the prevalence of 5.9% obtained in the index study for people age 20 - 29 years. The mean age of smokers in the index study was 33.2 years much older than the mean age of onset of smoking recorded in other studies [4] [11]. It has been stipulated that most people start smoking if exposed to cigarette early in life.

One of the interesting findings in the current study is a relatively high rate among office workers which may reflate their socioeconomic status. This has been documented also in previous reports. The 8.1% rate of alcohol use is not surprising because commonly reported abuse of both substances [4] [5] [11] [17] [18] [28]. Similar to most studies, cigarette use is male dominated, this is especially so in south east Nigeria because of rigid cultural perspective [1] [2] [3] [11] [13] [14] [17] [18]. The prevalence of snuff use is almost twice that of tobacco in the index study. This is reflected on the predominant age group and mean age of those that used the substance as well as the relative high prevalence among females. Furthermore, snuff use was dominated by retirees and farmers. In dominant Igbo culture of south east Nigeria, snuff use is more culturally acceptable in both males and females. The prevalence of current snuff use in population-based studies were lower than the current finding [3] which is slightly lower than in the index study.

The problem of marijuana use is strongly associated with younger age group and certain lifestyles. Although the index study did not evaluate the onset of substance use, however marijuana users were relatively younger and most prevalent among students. This has been reported in studies conducted among undergraduates and adolescents in Nigeria [5] [6] [11] [13] [14]. Cannabis is the third most popularly used drug among young Nigerians possibly because of low cost and availability as well ease of cultivation. The reported lifetime, 1-year and 30-day prevalence rates of cannabis use in Nigeria were 6.6%, 2.6% and 1.8% re-

spectively especially in Urban areas [3]. The 30-day prevalence is similar to 1.5% reported in the index study. Higher rates (9.8%) has been reported in Benin, south-south Nigeria [18] and Ile-Ife south west Nigeria (20.3% and 33%) [34]. These studies were not only separated be several years but were also conducted in different regions of Nigeria and may suggest not only a possible decline in the use of the substance but socio-cultural influences. Usually school-based studies usually reported higher rates [24] [25]. All these studies reported male dominance which is similar to the index study.

The use of tobacco and marijuana among individuals with hypertension and diabetes merits some comments. About 5% of people with hypertension and 5.8% of those with diabetes still smoked. The proportion was even 20.8% and 28.8% for those who used snuff. Furthermore, 6% of stroke patients also used snuff. The explanations for these findings maybe difficult considering the limitations of the index study, however the use of these substances should be discouraged and patients help to quit because of their considerable poor health implications.

Correlates of cigarette, snuff and marijuana smoking are shown in **Table 3**. The common use of alcohol and tobacco and/or cannabis has been previously reported [2] [5] [6] [31] and should be used in formulating public health educational programs against substance abuse. The correlation between diabetes and snuff use may be related to age of the patients [32]. It is also possible that people with stroke may consider snuff less harmful or even helpful. However, the reason for this finding is difficult to decipher from the index study. The type of alcohol beverage correlated differently with different substances. The ubiquitous nature of beer and gins which appear in different and fanciful packaging, widespread advertisements and proliferations of beer parlours may explain some of these findings. Local brew which are mostly consumed by older individuals may explain the correlation between it and snuff use.

The predictors of tobacco use are similar to most previous studies [34] [35] [36] [37] [38] and should form both target groups and items for public health education. Health problems associated tobacco and marijuana should be included in the health-related topics of current educational curriculum with the aim of reducing the use of these substances.

There are limitations to the index study. The prevalence of these substances was self-reported and may not be accurate especially among women. Secondly, the number of cigarettes and or the amount of snuff were not reported. This would have given a more comprehensive understanding of the nature of the problem in the community. Finally, the age of exposure or onset of substance use could have given an insight at what level to start educational interventions. Despite these limitations this study which to best of our knowledge is the only community-based study of its type in south east Nigeria will provide baseline data for further studies in the region and educational material for public health workers and policy makers.

6. Conclusion

The prevalence of cigarette smoking (5.5%), snuff (11.6%) and marijuana use (1.6%) was found in an urban settlement in Enugu. Predictors of tobacco use were older age, male gender and alcohol use. Public health intervention programs should reemphasize the health-related issues associated with these substances and the need to quit using them.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Questionnaire

THIS WORK IS DESIGNED TO FIND OUT HOW MANY PEOPLE IN AGUABOR/UGBODOGWU USE ALCOHOL, TOBACCO AND OTHER SUBSTANCES. HOW MUCH OF THESE SUBSTANCE THEY USE. YOUR IDENTITY WILL NOT BE DISCLOSED TO ANYONE OR RELEASED FOR ANY OTHER PURPOSE EXCEPT FOR THE GOAL OF THIS STUDY WITHOUT YOU PERMISSION.

Initials…… Age…… Sex…… Occupation…… Level of Education..... *Primary*, *Secondary*, *Tertiary*

Past medical history

Have you been told that you have or had -Hypertension------ Diabetes--------- Stroke---------- Epilepsy--------- Asthma--------- Sickle Cell disease---------- others----------

Use of tobacco and other substances. type….. smoking….. snuff..... Use of Marijuana

Others …… (describe)……. glue…….. cocaine……. (etc) ASK!

Current..... (las 4 weeks) Past……..

Use of alcohol… current (in the past 4 weeks)

Which type of alcohol do you prefer most of the time:

Beer……. Stout ……. Local gin…… Palm wine……. Wine……. Others……

Give an estimate how much alcohol you took in the last 4 weeks.

Bottles……

Small stout……

Big stout…….

Drinking glass (200 mls)…….

Shots…….

Thank you for cooperating with us.