# Epidemiology Of Tobacco Smoking Among Adults Population In North-East Nigeria

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**Citation**

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**Abstract**

This study is to determine the epidemiology of tobacco smoking in the adults' population of north-eastern Nigeria. We carried out a cross-sectional survey from June 2007 to July 2007 among 1793 adults in Yola, north-east Nigeria.
An adapted WHO recommended interviewer questionnaire was used to collect information from subjects. Out of 1793 respondents, 37.9% had smoked tobacco in their lifetime, 31.9% were current smoker while 6.0% were former smoker of tobacco. The current male and female smoking prevalence was 45.3% and 18.4% respectively. The mean age for starting tobacco smoking was 18.6 ± 5.1years and the mean cigarette consumption was 10 ± 2 sticks per day. Peer pressure was major reason for using tobacco accounting for 26.4 %. The male gender, age group 40-49, alcohol use, Margi, Hausa and Fulani ethnic tribes have significant association with tobacco smoking. The prevalence of tobacco smoking among adults population in north-eastern Nigeria was high.

## INTRODUCTION

Tobacco is an agricultural product from the fresh leaves of the plant in the genus Nicotiana, Tobacco is commercially available in dried, cured, and natural forms. Besides cigarettes, cigars, stem pipe or hookah smoking, it's chewed, “dipped” (placed between the cheek and gum), or sniffed into the nose as finely powdered snuff. [1]

The tobacco smoke contains nicotine and harmane which is a monoamine oxidase (MAO) inhibitor, both combined to result in addictive stimulant and euphoriant properties. Cigarette smoke is a complex mixture of chemicals produced by burning tobacco and the additives. The smoke contains tar, which has more than 4,000 chemicals, including over 60 known to cause cancer. Its intake also causes some fatal diseases like chronic obstructive lung disease (emphysema and chronic bronchitis), lung cancer, ischaemic heart disease, bladder cancer, upper respiratory tract cancers and pancreatic cancer. [2,3]

Tobacco use kills about one-half of all lifetime users. About 70 million people died because of tobacco between 1950 and 2000. There are 1.1billion smokers in the world, 70% of whom are in low-income countries. Over the next fifty years, 450 million may die because of tobacco use [4]. The increasing prevalence of tobacco use may be because of strong tobacco marketing and lack of effective tobacco control by the government. In Nigeria the prevalence of adults smoking in 2002 was 8.6%, [5] this studies was in a very small section of the society therefore cannot reflect the burden in Nigeria with a population of 140 million and the largest in Africa . There are some hospital based and group specific studies on cigarette smoking in Nigeria [6,7] however, due to socio-cultural differences existing among these groups and the method adopted in those studies comparison and conclusion are impossible from these studies.

There is a lack of population based data on tobacco use in the north-eastern Nigeria, it is important to do a recent study that will improve the local understanding of tobacco burden which is a panacea to proper control strategy . The aim of this study is carry out an epidemiological study of tobacco smoking among adults in North-east Nigeria.

## METHODS

This study was conducted over two month from June to July 2007 in Yola north and south local council areas in Adamawa state, North-East Nigeria. Adamawa state has border with four other neighbouring state in Nigeria and the Republic of Cameroon. The indigenous people are mostly farmers and traders. The study was approved by ethical committee of hospital and verbal consent given by the subjects in each household.

The subjects in the study population were selected by multi-stage sampling method and minimum sample size calculated using Cochran formula ($N=d^2 (p) (1-p)/c2$).

N is the minimum sample size ,d is the standard deviation at 95% confidence interval; p is the prevalence of smoking from the 2002 national survey of 8.6% and c is the error tolerated which is 5%. The calculated minimum sample size was 120 and it was adjusted for a response rate of 70% from a piloted survey.

This adjusted figure was small and not a true representative of the study population therefore we increased the sample size.

An adjusted WHO recommended interviewer questionnaire was used to obtained data from consented subjects, without interference from other members of the household by trained assistant.

The information's collected from subjects were coded into the computer and analysed using SPSS Version 14 statistical software. The frequency and descriptive analysis was performed for characterization of the study population while $X^2$ Chi-square test was for significance of association. A p value of $< 0.05$ was considered significant.

The association between independent determinants of tobacco smoking and ever tobacco smoking determined by odd ratio.

## RESULTS

1793 adult respondent out of 1961 selected from the household were interviewed giving a response rate of 91.4%. Out of 1793 subjects 901(50.3%) were male and 892(49.7%) were female giving a male to female ratio of 1:1.The aged range of respondents was17-80 years with a mean of 35.8 ± 10.1 years. In this survey 679(37.9%) of the respondents had smoked tobacco in their lifetime, out of which,572 (31.9%) were current smoker of tobacco,107(6.0%) are former smoker of tobacco while1114 (62.1%) never smoked tobacco in their lifetime. As shown in table 1

**Figure 1**

Table 1: Prevalence of tobacco smoking in adults' population of North-East Nigeria

| | | |
|---|---|---|
| Ever (lifetime) smoking | 680 | 37.9 |
| Currently smoking | 572 | 31.9 |
| Formerly smoking | 108 | 6.0 |
| Never smoking | 1113 | 62.1 |

N=1793
Current smoker =smoked tobacco inform of cigarette or pipe in <6 month
Former smoker = smoked tobacco inform of cigarette or pipe in ≥6 month
Ever (lifetime) smoking= smoked tobacco of inform cigarette or pipe in a lifetime

Four hundred and eight (71.3%) of the current smoker were male while 164(27.7%) were female giving a male to female ratio of 3:1 .The current male and female smoking prevalence was 45.3% and 18.4% respectively. Majority of the smokers were in the age range of 30-39 years and the mean age of the tobacco smoker was 36.6± 10.4 years. The mean age for starting tobacco smoking was 18.6 ± 5.1years. Table 2 shows the socio-dermographic the current smokers.

**Figure 2**

Table 2: Socio-demographic characteristics of the current smokers in North-East Nigeria

| Characteristics | Current smokers (N) | Percentage (%) |
|---|---|---|
| **Age range** | | |
| 15-19 | 6 | 1.1 |
| 20-29 | 159 | 27.8 |
| 30-39 | 189 | 33.0 |
| 40-49 | 138 | 24.1 |
| 50-59 | 60 | 10.5 |
| >60 | 20 | 3.5 |
| **Sex** | | |
| Female | 164 | 27.7 |
| Male | 408 | 71.3 |
| **Occupation** | | |
| Class 1 | 209 | 36.5 |
| Class 2 | 272 | 47.6 |
| Class 3 | 91 | 15.9 |
| Class 4 | 0 | 0 |
| **Education** | | |
| None formal | 35 | 6.1 |
| Primary | 158 | 27.6 |
| Secondary | 209 | 36.5 |
| Tertiary | 170 | 29.7 |
| **Socio-economic status** | | |
| Low | 481 | 84.1 |
| High | 91 | 15.9 |
| **Tribe** | | |
| Igbo | 30 | 5.3 |
| Bachama | 31 | 5.4 |
| Kilba | 52 | 9.1 |
| Hausa | 59 | 10.3 |
| Fulani | 165 | 28.8 |
| Others (30 tribes) | 235 | 41.1 |

N= 572

Almost all the current smokers 568(99.3%) smoked cigarette

while 4(0.7%) smoked tobacco with pipe. Among the current smokers, 95(16.6%) were mild or light tobacco smoker 322(56.3%) were moderate smoker, 90(15.7%) severe smoker and 65(11.4%) heavy of tobacco smoker. Also 572 who smoked tobacco 115(20.1%) deeply inhaled the smokes fumes, 442(77.3%) were moderate inhaler while 15(2.6%) are puffers of tobacco smokes fumes. Peer pressure was major reason for using tobacco, in 151(26.4 %). Social acceptance was in 118 (20.6%), 116(18.5%) because of pleasure, 83(14.5%) stress, while 40(7.0%), 15(2.6%) and 7(1.2%) assigned to tobacco advertisement, cold weather and smoking parent or guardian respectively. As shown in table 3.

**Figure 3**

Table 3: Reasons for Tobacco Smoking among Current Smoker

| Reasons | Number (N) | Percentage (%) |
|---|---|---|
| Peer pressure | 151 | 26.4 |
| Social acceptance | 118 | 20.6 |
| Pleasure | 116 | 18.5 |
| Stress/anxiety | 83 | 14.5 |
| Advertisement | 40 | 7.0 |
| Cold weather | 15 | 2.6 |
| Smoking parent/guardian | 7 | 1.2 |
| Role model | 6 | 1.0 |
| Other reasons | 36 | 6.3 |

N=572

The majority of the current smoker spend between 20-500 Nairas (Mean 165.5Naira ±110 Naira ?1.3 US Dollars) per day on tobacco consumption. More than half of the current users 292(51.0%) were previously advised by their doctors, religious leader or friend to quit tobacco use however only 228(39.9%) tried quitting it use. One hundred and thirty (57%) of the current user had tried quitting one to three times while 98(43.0%) had tried quitting more than four times. Three hundred and forty-seven (60.7%) of the current user of tobacco believed that smoking is harmful and supported its ban in public places, 225(39.3%) believe is not harmful and were against banning smoking in public places. Besides tobacco use, 318(55.6%) drink alcohol and 56(9.8%) smokes or chews marijuana. About 48 (44.4%) of former smokers stopped using tobacco because of its harmful effect, 58(53.7 %) because of ill health, 14(13.0%) to social pressure while 2(1.9%) to cost of tobacco product. Also 332(18.5%) of study population reported exposure to environmental smoking. The multivariate analysis in table 4 shows a strong association between ever smoked tobacco and male gender, people in 5th decade of life, Fulani, Margi and Hausa ethnic tribe and accompanying alcohol drinking . Socio-economic status and education attainment are not statistically significant (p> 0.05)

**Figure 4**

Table 4: Multivariate analysis of determinants of tobacco smoking in adults of North-East Nigeria

| Characteristics | Ever smoked | Never smoked | Odd ratio | C.I | P value |
|---|---|---|---|---|---|
| **Age range** | | | | | |
| 15-19 | 6 | 20 | 1.00 | | |
| 20-29 | 184 | 294 | 1.04 | 0.84-1.29 | 0.743 |
| 30-39 | 220 | 460 | 0.68 | 0.56-0.83 | <0.001 |
| 40-49 | 165 | 222 | 1.29 | 1.03-1.62 | 0.030 |
| 50-59 | 78 | 92 | 1.44 | 1.05-1.98 | 0.024 |
| >60 | 26 | 26 | 1.67 | 0.96-2.89 | 0.067 |
| **Sex** | | | | | |
| Female | 189 | 694 | 1.00 | | |
| Male | 490 | 420 | 4.29 | 3.48-5.26 | <0.001 |
| **Education** | | | | | |
| None formal | 42 | 153 | 1.00 | | |
| Primary | 193 | 248 | 1.39 | 1.12-.1.72 | 0.003 |
| Secondary | 276 | 418 | 1.14 | 0.94-1.39 | 0.188 |
| Tertiary | 168 | 292 | 0.93 | 0.74-1.15 | 0.489 |
| **S/economic status** | | | | | |
| High | 141 | 268 | 1.00 | | |
| Low | 538 | 846 | 1.21 | 0.96-1.52 | 0.107 |
| **Tribes** | | | | | |
| Others (31 tribes) | 265 | 808 | 1.00 | | |
| Margi | 30 | 16 | 3.17 | 1.72-5.86 | <0.001 |
| Igbo | 36 | 40 | 1.50 | 0.95-2.38 | 0.081 |
| Bachama | 34 | 68 | 0.81 | 0.53-1.24 | 0.331 |
| Kilba | 42 | 50 | 1.40 | 0.92-2.14 | 0.114 |
| Hausa | 86 | 54 | 2.85 | 2.00-4.06 | <0.001 |
| Fulani | 216 | 154 | 2.91 | 2.30-3.68 | <0.001 |
| **Alcohol** | | | | | |
| No | 342 | 848 | 1.00 | | |
| Yes | 337 | 266 | 3.14 | 2.56-3.85 | <0.001 |
| N = 1793 | 679 | 1114 | | | |

**Odd Ratio =1 (Referenced OR)**
**C.I =confidence interval**

## DISCUSSION

This is a pioneer population based study with large sample size in adults of North-eastern part of Nigeria. Most of the studies done in Nigeria are in specific groups like the females gender, students of educational institution, doctors and armed forces personnel in the society [8,9,10,11] . The prevalence of lifetime (ever) tobacco smoking in this study population was 37.9%, the prevalence of current tobacco smoking was 31.9% and ex- tobacco smoking was 6.0%. The prevalence of current smoking in this study was higher when compared with the national survey carried out in 2002 which was 8.6% and 17.6% among rural dwellers in south-west Nigeria [5,7] Also higher than 24.6% in south Africa [12] but is closer to 32.0% in Senegal, 35.7%,37.0% in Benin and Cameroon respectively [5] who were our geographical neighbours in West Africa . The geographical variation in these results might be because of the different definition of current smoker adopted in the various studies. More than a third of this study population smokes tobacco as cigarette or pipe. This is worrisome and is a great cause for concern because of its negative impact on the health of our population. The result from the Nigerian tobacco survey in 2002 is a gross underestimation of tobacco use. The problem of underestimation is an issue in most of developing

countries in sub-Saharan Africa and Asia [13] .

The prevalence of male smoking was 45.3% while female was 18.4% giving a ratio of 3 to1, this is similar to many other studies, [13] but different from Guinea in West Africa and the developed countries [3,13] . Although there is a predominance of male smoking in this study one can cannot overlook the high prevalence of tobacco smoking in the female population which is similar to 19% in United State of America [3] . This trend may due to the strong tobacco advertisement by multinational company directed toward women in educational institutions and the markets as well as poor control strategies by the authorities.

The socioeconomic status of a person is determined by the income, occupational class and educational attainment. By stratifying the respondents into low and high socioeconomic class 84.1% of the current smokers belong to low socioeconomic class while 15.9% belongs to high socioeconomic class. This result is similar to reports from India [14] . The reason many poor people smoke is that they see tobacco as a "reward", and perhaps feel that they have less to lose from future illness, because they see no future to look forward to or for which to plan. The mean age of the tobacco smoker was 36.6 ± 10.4years and the average age of starting tobacco smoking was 18.6± 5.1years. This is similar to study of rural dwellers in South-West Nigeria [7] , Kuwait [15] but less than 20.5 years in India [16] and higher than 14 years for USA and European countries [3] . The early age of tobacco smoking in the developed countries may connected to the degree of youth freedom and the moral and religious value attached to smoking. The knowledge about the age of starting smoking would help the policy maker in channelling the limited resources on tobacco cessation programme at the adolescent. More than half of the current smokers are mild smoker (smokes 1-10 sticks each day) and the mean cigarette consumption is 10 ± 2 sticks each day. The rate of consumption in our study was similar to other survey in Nigeria but less than the consumption rate in the Middle East and America [13,15] .

This consumption rate in our study put the smoker in a category of people that are likely to respond positively to tobacco cessation therapy. Almost a third of the ever-smoker (31.6%) smokes Benson and hedges brand of cigarette,12.1% smokes Aspen brand, Rothmans 10.9% and Saint Morris was 4.4% . This pattern of brand of cigarette smoked might be due to the presence and concentration of menthol and additive ingredients in the specific brand of cigarette. Peer pressure was main reason for starting tobacco smoking in a quarter of the smoker and in 20.6% social acceptance was the culprit. This result agrees with similar survey from Nigeria [7] and based on this finding, the quitting programmes need to focus mostly on the early adolescents and socio-cultural societies. This study has also revealed that 60.7% of the current smoker believes tobacco smoking is harmful to their health, 51.0% were previously advised to quit however only 33.9% have tried quitting tobacco use. The quitting percentage in our study was low when compared to 56.0% in Kuwait [15] ; our findings may because of lack of awareness tobacco related diseases and poor health education in the North-Eastern Nigeria. About 53.7% of the former smoker quit due to ill health while13.0 % was because of social pressure and fewer than 2% quit due to cost of tobacco product. The low quitting rate of tobacco may be due to result of addiction, when nicotine addiction develops irrespective of socioeconomic status, efforts is made by the individual to satisfy himself. This study has shown that is a strong association between ever smoked tobacco and independent determinant of smoking like male gender, age range 40-4 , accompanying alcohol intake and belonging to Fulani, Hausa and Margi ethnic tribes. The prevalence of tobacco smoking among adult population in this region of Nigeria was high when compared to the result of the national survey done 6 years ago which grossly underestimate the burden of tobacco use in Nigeria. Besides, this study also found a high prevalence of smoking among the female gender. Because of the socio-cultural diversity of Nigeria and the population size of 140 million which is largest in Africa, it is important that a national survey of tobacco smoking similar to that of HIV be carried out in all the geopolitical zones of Nigeria. This comprehensive national survey would reveal the true picture of the burden of tobacco in Nigeria. Also the government and stakeholders needs to draft a tobacco control policy that adaptable to Nigeria and targeted at the adolescence and at risk groups to reduce tobacco related morbidity and mortality.

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