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Socio-Demographic Determinants of Cigarette Smoking among Adults Attending a Community Based Health Screening Program in Lagos, Nigeria.

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Keywords Abstract

Background: Socio-demographic factors and knowledge of harmful health effects of tobacco are important factors that may influence Tobacco smoking behavior. We aimed to determine the socio demographic factors associated with cigarette smoking among adults who voluntarily Smoking attended a free health screening program. Prevalence Methods: We recruited consecutive participants and used a structured questionnaire to obtain their socio-demographic profile, cigarette smoking behavior and their knowledge of the harmful health effects of tobacco smoking. We determined the factors associated with Knowledge cigarette smoking by stepwise logistic regression. Community Results: There were 238 participants (age range 25 years to 64.years, mean=43.2±9.6 years, 55% male). There were 45 (18.9%) ever cigarette smokers and 44 (97.8%) of all ever smokers were males. Prevalence of current cigarette smoking was 12 (5%) among all participants. All current smokers were males, 50% had tertiary education and over 80% were in occupational class 3-5. 83.3% of current smokers desired to quit but did not have access to smoking cessation services. 10.9% of all participants had good knowledge of the harmful health effects of cigarette smoking, 29.4% had some knowledge and 59.7% had little knowledge. There was no significant relationship between the level of knowledge and smoking behavior. Male gender and not taking alcohol regularly were significant determinants of being an ever smoker. Conclusion: Social factors such as older age, higher education and lower occupational class influence tobacco smoking behavior among adults in Lagos and the level of knowledge of harmful health effects of tobacco is low among all participants. There is need to design tobacco control programs targeted at adults in the community and the establishment of smoking cessation clinics and support groups to assist smokers to quit.

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INTRODUCTION

The 2012 Global Adult Tobacco Survey (GATS) reports that the prevalence of current cigarette smoking among adult Nigerians aged 15 years and above is relatively modest (3.7%) but the World Health Organization (WHO) projects an increase in prevalence of cigarette smoking in most developing countries in the future.¹⁻³ This is because while the level of consumption of tobacco is decreasing in the developed world, it is increasing in low and middle income countries at a rate that is 2.5% higher than in developed countries.²

Factors that are associated with this upsurge include the adoption of the western lifestyle in many parts of Sub Saharan Africa, aggressive market penetration by transnational tobacco companies and relatively weak tobacco control program and policies in this region.^{2,4-5}. Other factors such as level of education, awareness of the dangers of cigarette smoking, availability of support for cigarette smokers to quit smoking and other socio-demographic factors which contribute to cigarette smoking may also play a role.⁶

Tobacco use is a public health problem with the worldwide tobacco-attributable deaths projected to reach 6.4 million in 2015 and 8.3 million in 2030.³ Tobacco use increases the risk of cardiovascular diseases, respiratory diseases and malignancies and poses substantial economic burden on the individual and the healthcare system. The impact of an increased prevalence of smoking in low and

middle income countries therefore is likely to be substantial considering the relatively weaker healthcare system in this region.⁴

In contrast to what obtains in developed countries, most tobacco users in developing countries are older adults who are more vulnerable to the harmful health effects of tobacco usebut epidemiological data on these group of persons in very limited from Nigeria.^{1,6-8} Previous studies in Nigeria have mainly focused on youth smoking or on a specific adult population.⁸⁻¹² It is important to evaluate the pattern of cigarette smoking among older adults so as to provide useful data that is relevant to the development of focused and effective tobacco control programs

This study was designed to determine the prevalence of cigarette smoking, socio demographic factors associated with cigarette smoking including the knowledge of harmful health effects of tobacco use among adults presenting at a community based voluntary health screening program.

METHODS.

This was a cross sectional study conducted in November 2013 during a health outreach program that was organized as part of activities to mark the World Stroke Day by the staff and students of the department of Medicine of the College of Medicine, University of Lagos. The location of the study was within the premises of the University of Lagos, Akoka, Yaba which is situated in a densely populated area in Lagos metropolis. Lagos metropolis is the commercial capital and the largest city in Nigeria with a diverse population of over 17 million people.¹³

There are residential areas within the university for both students and all cadres of staff and their families as well as numerous business activities that bring other members of the public into the premises. The immediate surroundings of the university comprise residential areas for the general public and many business premises.

Preparation for study

The date of the exercise, the venue and activities to be undertaken during the screening exercise were disseminated to members of the university community, its environs and the city of Lagos generally using various approaches. Firstly the University of Lagos radio station which is received across the city of Lagos began announcing the exercise about four times daily one week prior to the study date and invited all members of the public to attend. Secondly, information regarding the study and a formal invitation were printed as fliers and distributed by hand to members of the university community and members of the public who resided or worked outside the university covering an area of about five kilometer radius outside the campus. Thirdly, a member of the study team participated in a radio show at a different radio stations on the morning of the screening to enlighten the public on the risk factors for stroke and also invited members of the public to attend the screening program.

Ethical considerations

The entire screening program was conducted free of charge and the participants were given a copy of all results obtained. Antihypertensive and other medications were given to those participants who required immediate treatment and those requiring further medical attention were given a referral letter to the Lagos University Teaching Hospital (LUTH) or any other preferred hospital. Each participant consented to having their unidentifiable data used for research purposes. Prior ethical approval was obtained from the Health Research Ethics Committee (HREC) of LUTH.

Recruitment

We recruited consecutively consenting participants who attended the screening programme. A trained interviewer obtained sociodemographic data was obtained and correlates of tobacco smoking using a structured questionnaire. The questionnaire obtained information on tobacco smoking behavior, type of tobacco smoked including the use of smokeless tobacco and duration of smoking. Current smokers were also asked about the desire to quit smoking, reasons for wanting to quit, and willingness to seek help in quitting. History of alcohol consumption and use of other psychoactive substances such as cannabis, cocaine, heroin and amphetamines was also obtained.

All participants irrespective of smoking status were also assessed for their knowledge of the harmful health effects of tobacco smoking. "Is cigarette smoking dangerous to health?" was asked as a direct question. The participants were then asked to name three top harmful health effects of cigarette smoking. The three top harmful health effects being sought were respiratory problems, cancers and cardiovascular diseases. Those able to name all three were categorized as having 'good knowledge', those who named two were categorized as having 'some knowledge' and those who named one or none were categorized as having 'little knowledge'.

An initial sample size of 150 participants was calculated to detect the prevalence of tobacco use in the general population with a 1% margin of error. A prevalence of 6% for tobacco use based on the 2012 GAT study in Nigeria was used for the calculation.¹A 10% margin of error was allowed and the minimum sample size calculated was 165 participants. Data was analyzed using the statistical software for social sciences (SPSS) version 20 package. Frequencies were expressed as percentages and compared using the chi-square test. Factors associated with smoking status were explored by logistic regression. A P-value less than 0.05 was considered significant.

Operational definitions:

Ever-smoker: Smoked at least 20 packs of cigarette in a lifetime or at least one stick of cigarette daily for one year.

Current smokers: Currently smoking cigarettes daily or regularly.

Pack years: Number of sticks of cigarette smoked per day divided by 20 and multiplied by the total number of years smoked.

Regular alcohol drinker: Drinks two or more "units" of an alcoholic beverage daily.

Occupation class was classified as follows¹⁴: Class 1 – Professional occupations, Class 2 – Managerial and technical occupations, Class 3 – Skilled nonmanual and manual occupations, Class 4 – Partly skilled occupations, Class 5 – Unskilled occupations.

RESULTS

There were 238 participants (25 years to 64.years, mean=43.2±9.6 years). One hundred and thirty one (55%) were males and all participants resided in the urban area of Lagos. The baseline characteristics of the participants are described in Table I. About three quarters of the participants respectively had at least secondary education

Table I: Baseline characteristics of the study participants.

| Characteristics | Frequency (%) |) | | | |
|-----------------------------|-----------------|-------------|---------------|--|--|
| | All, N=238 | Male, N=131 | Female, N=107 | | |
| Age group | | | | | |
| 25-44 | 124 (52.1) | 73 (55.7) | 51 (47.7) | | |
| 45-64 | 114 (47.9) | 58 (44.3) | 56 (52.3) | | |
| Highest level of education* | | | | | |
| None | 14 (5.9) | 6 (4.6) | 8 (7.5) | | |
| Primary | 47 (19.7) | 14 (10.7) | 33 (30.8) | | |
| Secondary | 69 (29) | 39 (29.8) | 30 (28) | | |
| Tertiary | 108 (45.4) | 72 (55) | 36 (33.6) | | |
| Class of occupation | | | | | |
| Class 1 | 32 (13.4) | 21 (16) | 11 (10.3) | | |
| Class 2 | 30 (12.6) | 19 (14.5) | 11 (9.7) | | |
| Class 3 | 55 (23.1) | 38 (29) | 17 (15.9) | | |
| Class 4 | 53 (23.3) | 34 (26) | 19 (17.8) | | |
| Class 5 | 49 (20.6) | 5 (3.8) | 44 (41.1) | | |
| Students | 19 (8) | 14 (10.7) | 5 (4.7) | | |
| Knowledge of health effe | ects of smoking | | | | |
| Little knowledge | 142 (59.7) | 80 (61.1) | 62 (57.9) | | |
| Some knowledge | 70 (29.4) | 37 (28.2) | 33 (30.8) | | |
| Good knowledge | 26 (10.9) | 14 (10.7) | 12 (11.2) | | |
| Prevalence of cigarette s | | | | | |
| Ever smoked cigarette | 45 (18.9) | 44 (33.6) | 1 (0.9) | | |
| Current cigarette smoker | 12 (5) | 12 (9.2) | 0 | | |
| Regular alcohol intake | 39 (16.4) | 34 (26) | 5 (4.7) | | |

Footnote: All the students were unemployed and studying at the tertiary level of education.

Only manufactured cigarettes were smoked and no participants smoked pipes or cigars or used any form of smokeless tobacco. 16.4% of all participants were regular alcohol users and no participant admitted to the use of other psychoactive substance such as cannabis, cocaine, heroin or amphetamines.

Prevalence and pattern of cigarette smoking

There were 45 (18.9%) ever cigarette smokers and 44 (97.8%) of all ever smokers were males. Prevalence of current cigarette smoking was 5% among all participants and 9.2% among male participants. All current smokers were males and smoked daily.Half of the current smokers were between 25 - 44 years. All current smokers had formal education, two (16.7%) had primary education, four (33.3%) had secondary education and 6 (50%) had tertiary education

There level of education among the current smokers was not significantly different (χ^2 =0.95, p=0.81). None of the students or those in occupational class 1 was a current smoker, 2 (16.7%) were in class 2, 6 (50%) in class 3, 3 (25%) in class 4 and 1 (8.3%) in class 5. The occupational class among the current smokers did not differ significantly (χ^2 =8.6, p=0.13). 50% of the current smokers were regular alcohol drinkers and 84.6% of the regular alcohol drinkers were non-smokers.Table II describes the pattern of cigarette smoking among all ever smokers and among only current smokers.

Regarding the reason for initiating cigarette smoking, 34 (75.6%) of ever smokers attributed it to peer pressure, 2 (4.4%) to parental smoking, and 3 (6.7%) to other relatives smoking (not siblings). Six (13.3%) gave no reason for initiating cigarette smoking.

Among the current cigarette smokers, 10 (83.3%) wished to quit smoking. Nine wanted to quit due to the harmful health effects of cigarette smoke, while one participant wanted to quit because smoking cigarettes was embarrassing. Nine current smokers had unsuccessfully attempted quitting at least once in the past. None had ever sort support to quit smoking.

The challenges to quitting cigarette smoking among those desiring to quit included peer pressure, addiction and loneliness. Nine current smokers were willing to seek help if available to assist them in quitting smoking but were unaware of where to find such help.

Knowledge of dangers associated with cigarette smoking among all participants.

Affirmation to the direct question "is cigarette smoking dangerous to health?" was 70.2% among all participants. 78.6% in males versus 59.8% of females (X2=9.96, p=0.002), 82.2% in ever smokers versus 67.4% in never smokers(X2=3.9, p=0.05), 49% in occupational class 5 versus 93.8% in occupational class 1 (X2=21.3, p=0.001), 44% in those with primary education versus to 85.2% in those with tertiary education (X2=27.6, p<0.001).

Based on the criteria previously described, the overall level of knowledge of the dangers of cigarette smoking for all participants is shown in Table 1. Five (2%) of ever smokers versus 21 (10.9%) of never smokers had 'good knowledge',13 (28.9%) of ever smokers versus 57 (29.5%) of never smokershad 'some knowledge' and 27 (60%) of ever smokers versus 115 (59.6%) of never smokershad 'little knowledge' (X2=4.7, p=0.19). None of the participants in occupational class 5 compared to 25% in class 1 had 'good knowledge' (X2=28.8, p=0.001).

None of the participants without education or with primary education compared to 19.4% with tertiary education had 'good knowledge' (X2=43.4, p<0.001). 41.1% of females compared to 22.9% of males could not name one harmful health effect of cigarette smoking (X2=15.8, p=0.001). Table not shown.

Determinants of ever smoking cigarettes

Stepwise logistic regression model were used to assess for the social demographic determinants of being an ever smoker (Table 3). Univariate logistic regression was performed using age, gender, level of education, occupational class and alcohol consumption and only factors with a p value≤0.2 (gender, occupational class and alcohol consumption) were included in the multivariate model. Male gender and taking alcohol regularly were significant determinants of being an ever

smoker in multivariate analysis.

| Table II: Pattern of cigarette smoking among all ever smokers and current smokers | | | | | |
|---|-------------|-------------|--|--|--|
| Characteristic | Ever smoker | Current smo | | | |

| Characteristic | Ever smoker | | | Current smoker | | |
|--|-------------|----------------|-----------------|----------------|--------------|--------|
| | Range | Mean (SD) | Median (IQR) | Range | Mean (SD) | Median |
| Age of onset of cigarette smoking (years) | 7-35 | 19.1 (6) | 18 (15 -23.8) | 18 - 35 | 24.2 (5) | 24 |
| Duration of cigarette smoking (years) | 2-57 | 16.2 (13.4) | 14.5 (6 -20) | 4-35 | 17.2 (9.3) | 16 |
| Sticks of cigarettes smoked per day | 1-21 | 7.1 (6.4) | 4 (3 -9.5) | 1-8 | 3.4 (2) | 3 |
| Pack years of cigarettes smoked | 0.4 -57 | 6.6 (11.8) | 2.8 (1.2 -5.2) | 0.4 -7.2 | 2.8 (2.2) | 2.1 |

Table 3: Univariate and multivariate logistic regression for the determinants of cigarette smoking

| | Unadjusted | | | Adjusted | | |
|----------------------------|-------------------|--------------|---------|--------------|--------------|---------|
| Variable | Odds Ratio | 95% CI | P Value | Odds | 95% CI | P value |
| | | | | Ratio | | |
| Age | 1 | 0.97 - 1.04 | 0.87 | Not included | | |
| Gender (Male) | 0.02 | 0 - 0.14 | < 0.001 | 0.01 | 0 - 0.11 | < 0.001 |
| Highest level of education | | | 0.55 | Not included | | |
| Tertiary | Reference | | | | | |
| None | 0.28 | 0.04 - 2.3 | 0.24 | | | |
| Primary | 0.65 | 0.26 - 1.63 | 0.36 | | | |
| Secondary | 0.94 | 0.45 - 1.98 | 0.87 | | | |
| Class of occupation | | | 0.05 | | | 0.06 |
| Student | Reference | | | Reference | | |
| Class 1 | 2.4 | 0.44 - 12.87 | 0.31 | 3.85 | 0.63 - 23.45 | 0.14 |
| Class 2 | 2.13 | 0.38 - 11.83 | 0.39 | 3.01 | 0.48 - 18.77 | 0.24 |
| Class 3 | 4.14 | 0.86 - 19.87 | 0.08 | 6.34 | 1.18 - 33.94 | 0.03 |
| Class 4 | 1.51 | 0.29 - 7.84 | 0.62 | 1.74 | 0.31 - 9.85 | 0.53 |
| Class 5 | 0.76 | 0.13 - 4.51 | 0.76 | 14.27 | 1.4 - 145.65 | 0.03 |
| Regular alcohol use (YES) | 0.21 | 0.1 - 0.45 | < 0.001 | 0.31 | 0.13 - 0.73 | 0.01 |

DISCUSSION

The prevalence of current tobacco smoking of 5% from our study is higher than the national prevalence of 3.7% and also higher than the prevalence of 2.9% reported forall urban areas in Nigeria.¹ However, the prevalence of smoking among adults 25 years and above (5%) in the GATS national survey is similar to our finding.¹ This implies that cigarette smoking is more predominant among older adults in Nigeria and was also corroborated in a population based survey from the North Eastern part of Nigeria in 2007. In that study the prevalence of tobacco smoking was about 33% in those 30-39 years of age compared to 1.1% among those 15-19 years of age with an overall prevalence of cigarette smoking of about 30%⁸ The higher prevalence of smoking in the North Eastern part of Nigeria may berelated to the ethnicity of the participants (most were Fulani, Hausa and Margi) and increased social acceptability of cigarette smoking in that region.

Our study also highlights the predominance of cigarette smoking among males with gender being a significant determinant of ever smoking.^{1,6,8,15} Social disapproval is a major limitation for female smoking in Nigeria as well as in most developing countries and this positive trend is being threatened as they is a narrowing gender gap

especially among younger persons in more recent studies.⁹

About 75% of the participants in our study had at least secondary education and a higher prevalence of smoking among persons with higher education was also demonstrated in the GATS in Nigeria as well as and in the study in North East Nigeria.^{1,8} This trend among educated adults in Nigeria contrast the pattern in developed countries and some developing countries like India where the trend is towards a dominance among those with little or no education.^{67,15} In the Indian study, the cheaper hand rolled tobacco was mainly used by the rural participants aligning with reports from other developing countries that smokeless tobacco is mainly used among rural dwellers and persons of lower educational status.⁶

The mean age of onset of cigarette smoking in this study for ever smokers (19 years) is similar to the <20 years that have been previously reported.¹⁶However, it is noteworthy that the age of onset for current smokers (24 years) is much higher. This may suggest that factors such as social and financial independence are likely to enhance a sustained smoking habit among Nigerians. An exploratory study on the tobacco smoking in Nigeria demonstrated that social practicesplace great value on the opinion of elders who generally consider youth smoking to be irresponsible and therefore most smokersonly become confident smokers as adults when they are financially and socially independent.¹⁷

Our study also demonstrates that peer pressure remains the most important reason for initiating cigarette smoking and this is likely to be related to the relatively poor level of knowledge of the harmful health effects of tobacco use. The WHO recommended five policy directions for tobacco control which comprise of the provision of a smoke free environment, supportive program for tobacco users to quit, bold graphic health warnings of tobacco packs, bans on advertising, promotion and sponsorships by tobacco companies and higher taxation on tobacco are not yet fully implemented in Nigeria and may contribute to the low level of knowledge of harmful health effects.¹⁸ In developed countries, government mandated bold graphic warning of cigarette pack naming specific harmful health effects has been shown to increase knowledge of the dangers of cigarette smoking and have motivated some smokers to quit.¹⁹⁻²¹

In this study as well as in previous studies in Nigeria, most adult cigarette smokers are light smokers who desire to quit smoking, suggesting that smoking cessation programs are likely to be effective among them.^{8,11} Most tobacco related control programs in Nigeria have been targeted towards adolescents in schools who are an important target to prevent smoking initiation but programs targeted at adults at the community level are also required.^{22,23} Such programs should be community based employing measures such as public enlightenment campaigns, education at community gatheringsusing trained community leaders as key opinion leaders and effective use of the mass media. Support groups and smoking cessation clinics encourage cigarette smokers to quit but these are uncommon in Nigeriaand provision of these services will contribute significantly in reducing the prevalence of smoking.24

We recognize some limitations in this study. The participants attending a free health screening program may not represent the general population as there may have been a bias towards persons concerned about their unhealthy lifestyle or comorbid conditions or those with limited resources to seek healthcare. Also, the location of this program within the university premises may have contributed to a high proportion of educated participants. However, this study does provide insight into the prevalence and social determinants of cigarette smoking among older adults in Lagos, Nigeria which is relevant to the development of an effective tobacco control program.

CONCLUSION

In conclusion, there is a modest prevalence of

cigarette smoking among adults in Lagos and most smokers wish to quit smoking. There is a low level of knowledge of the hazards of cigarette smoking which throws up the need to design tobacco control programs targeted at educating adults in the community on the hazards of tobacco smoking. The provision of smoking cessation clinics and support groups by the government and other stakeholders is pertinent as well as the full implementation of measures stipulated in the WHO tobacco control policy guideline.

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