

Epidemiological Study on the Prevalence of Cigarette Smoking and Factors Associated with It among Nursing Students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria

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Abstract

Background: Smoking is currently considered one of the greatest problems in public health worldwide, and it is one of the most avoidable causes of death. The World Health Organization (WHO) attributes more than 4 million deaths a year to tobacco, and it is expected that this figure will rise to 10 million deaths a year by 2020. Every year 5,500 billion cigarettes are manufactured and 1.1 billion people smoke cigarette worldwide. Therefore, the aim of this study was to determine the prevalence of Cigarette smoking and factors associated with it among nursing students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria.

Methods: Cross-sectional study design was conducted among nursing students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria from February, 2020 to April, 2020. Data was collected using a pretested structured questionnaire. Descriptive analysis was performed to obtain the frequency distribution of the variables.

Results: The result shows that 300 participants responded to the questionnaire. The overall cigarette smoking prevalence was 4.7%.

Conclusion: This study concluded that low proportion of nursing students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria smoked cigarettes. Sex, age and peer influence were identified as important determinants of cigarette smoking. There is a need for early cost-effective interventions and education campaigns that target health science students.

Keywords: Bauchi, Cigarettes, Nursing, Smoking, Students, Tobacco

1. INTRODUCTION

Smoking remains the leading cause of preventable deaths, causing almost 6 million deaths globally every year [1]. Tobacco use is responsible for over 20 percent of all cancer deaths and 70 percent of all lung cancer deaths worldwide. It is also a risk factor for respiratory diseases (including asthma, bronchitis and emphysema) and cardiovascular diseases and stroke [2].

Despite all these, the number of smokers worldwide has now risen to about 1.3 billion

and may well reach 1.5 billion by 2025 [3]. This increase in the consumption of tobacco is largely due to the targeting of young people and women by transnational tobacco companies.

In response, global public health organizations aim to provide consistent anti-smoking policies across the world [4, 5]. However, to design appropriate scientifically-based policies to control the use of tobacco, there is a need to understand the patterns and social distribution of smoking [6].

Smoking is currently considered one of the greatest problems in public health worldwide, and it is one of the most preventable causes of death. Globally, the use and sale of substances such as alcohol and tobacco is causing substantial levels of health problems [7]. The World Health Organization (WHO) attributes more than 4 million deaths a year to tobacco and this figure is expected to increase to 10 million deaths a year by 2020. Moreover, it is now a growing public health challenge in the developing world [8]. According to WHO estimates, approximately 47% of men and 12% of women smoke cigarettes worldwide in 2010 [9]. Citing the death of 5 million individuals worldwide every year due to smoking-related diseases, the WHO states that smoking should be considered a pandemic [9]. In the United States, each year, approximately 440,000 persons die of diseases attributable to cigarette smoking leading to 5.6 million years of potential life lost, \$82 billion in lost productivity, and \$75 billion in direct medical costs [10]. Cigarette smoking has been described as a “gate way” substance towards illicit drug use among adolescents [11].

The onset of tobacco use occurs primarily in early adolescence, a developmental stage that is far removed by several decades from the death and disability that are associated with smoking in adulthood [12]. Therefore, the fact that many adult smokers initiated their smoking habit as adolescents makes adolescence smoking a significant public health problem [13]. It is also important as it is associated with respiratory health effects such as the incidence and exacerbation of asthma [14]. Studies showed that national smoking prevalence among men in sub-Saharan Africa varies from 20% to 60% and the annual cigarette consumption rates are on the rise for both men and women [13]. According to a report from Kenya, 7.2% of schools going adolescents smoke cigarettes [13].

Accurate information on the prevalence, patterns and predictors of smoking in the world’s poorest nations remains sparse [15]. For sub-Saharan Africa, in particular, a weak knowledge base limits the targeting of strategies to combat the potential growth of tobacco use and its harmful effect on future mortality. The strategies to combat the globalization of tobacco should be focused on better describing the extent and social distribution of the problem [16-18]. There is evidence that suggests that tobacco use is increasing in developing

countries [19], and so surveillance of smoking prevalence can aid in developing locally grounded actions for tobacco control [1, 20]. This will prevent an escalation of tobacco use in these countries and therefore forestall the probable public health burden of smoking in the incoming years.

In Nigeria, not much is known about the socio-demographic dimensions of smoking from a national perspective, even though there are existing studies on tobacco use among various sub-population groups. Desalu et al. [21] carried out a study to determine the epidemiology of tobacco smoking in the adult population of northeastern Nigeria using a cross-sectional survey of 1793 adults in Yola. The prevalence of current smoking was 45.3% among males and 18.4% females, respectively. They conclude that the prevalence of tobacco smoking was very high in the study population.

Currently the prevalence of smoking is increasing at the global level and highly associated with increased rate of mortality and morbidity. It also results in reduction of quality of life, life expectancy, low academic performance and increased costs on the smokers, increased risk of acquiring HIV/AIDS, mental problems, behavioral changes [22-24].

According to the study conducted in Jordan most of the smokers started smoking after the age of fifteen. Peer pressure was found to be the leading reason to be involved in smoking followed by seeking pleasure [25]. During the transition to higher learning institutions young adults face many new sources of stress including separation from family, sharing close living quarters with strangers, the formation of new social groups, intense academic pressures and the balancing of social engagements with academic and other life responsibilities which can lead them to get starting smoking [26]. Cigarette smoking gradually increased in the World because of its easy access at any place [27] and by the year 2025 there will be about 1.7 billion smokers across the globe [28]. According to study conducted at Haramaya University 225 (22%) of the respondents smoked cigarettes at least once in their life time [29], at Aksum university 9.5% [30], at Calabar university Nigeria 55.8% of them smoke daily [31], in India 72.84% [32], in Rajasthan India 12.94% were current smokers [33], at Hawassa university 14.8% have ever cigarette used in their life time [34].

Globally, tobacco use is a major cause of avoidable and premature mortality and morbidity, accounting for about 6 million deaths [35, 36]. One person dies every six seconds due to tobacco related disease. Of these deaths, 75% occur in low and middle income countries where more than 80% of the world's smokers, including Nigeria's, live [35]. The death toll from tobacco is estimated to reach over 8 million deaths per year by 2030, and if unchecked, tobacco could kill over 1 billion people in the 21st century [37, 38]. It is estimated that 100 million premature deaths occurred globally in the 20th century, due to tobacco smoking. Equally, tobacco smokers are believed to lose one decade of their life expectancy, when compared to people who have never smoked [35].

The Global Adult Tobacco Survey report for Nigeria shows that 4.5 million (5.6%) adults aged 15 years or older currently smoke (10.0% men and 1.1% women), while 6.4 million (29.3%) of adults were exposed to second-hand smoke during visits to public places [39].

The Global Youth Tobacco Survey of Nigeria 2008 showed that one in five students aged 13-15 years had ever experimented with cigarette smoking, and about one in ten students currently smoked cigarettes [40]. In a study among Pharmacy students in Lagos, Nigeria, the current smoking prevalence was low at 5.5% [41]. In Nigeria, 7 in 10 current smokers planned to or were thinking about quitting; and 6 in 10 male smokers who visited a health care provider in the previous 12 months were advised to quit [39].

Several studies have documented that tobacco use and smoking are associated with some socio-demographic factors including; age, gender, marital status, education, employment, occupation, religion, ethnicity and place of residence (urban/rural) [42, 43].

A study in Nepal documented that the use of any form of tobacco was significantly associated with respondents' age, marital status, educational status, occupation, environment and watching television. The study found that; those aged 36-49 years were about 2 times more likely to use any form of tobacco than the younger age group 15-24 years; men married or in a relationship were about 2 times more likely to use tobacco. Men with no education (laborers) were about 4 times more likely than those that had education. However, watching television at

least once weekly was found to reduce the risk of smoking [44].

Another study found that prevalence amongst men was significantly higher than in women for any type of tobacco use (56.5% and 19.6%, respectively), older adult, men, lesser education, and lower wealth quintile were more likely to use all forms of tobacco [43].

Similarly studies also reported that poor people are more likely to smoke more, less willing to quit smoking and more likely to die from smoking than people in the highest socio-economic groups [35, 37, 38]. The same trend is observed in initiation, as the likelihood that a young person will start smoking is higher in less privileged groups [43]. The identified rising social inequality of smoking and the associated health impacts were attributable to the age of initiation of smoking [37, 38, 45].

Cigarette smoking is a very wide spread activity and consumption of cigarette has today reached the level of a global epidemic [46]. Every year 5,500 billion cigarettes are manufactured and 1.1 billion people smoke cigarette worldwide [46, 4].

In Nigeria, about 93 million sticks of cigarette are produced annually, with every one of these cigarette sticks being consumed [47]. Cigarette smoking has been found to be associated with heart and chronic obstructive lung diseases. Lung and other cancers (bladder, pancreas, upper respiratory tract, esophagus, stomach and leukemia) are increasingly being associated with cigarette smoking [46]. Millions of people suffer illness and disability due to cigarette smoking [4]. Cigarette smoking is associated with reduced life expectancy not only for active smokers but for passive smokers as well. Individuals 15-24 ages which are critical groups are mostly found in schools where they can be at the risk of developing smoking behaviors intentionally or unintentionally. Since they are going to be a productive age group major emphasize should be given to address this group.

However, the prevalence of cigarette smoking, especially among nursing students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria is largely unknown and to the best of our knowledge, no student-based survey has been conducted on the prevalence of Cigarette smoking and its associated factors in Aliko Dangote College of Nursing Sciences Bauchi

State, Nigeria. Therefore, the aim of this study was to determine the prevalence of Cigarette smoking and factors associated with it among nursing students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria.

2. METHODOLOGY

2.1. Study Area and Study Design

The study was conducted at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria. A cross-sectional study was conducted using interviewer-administered questionnaire from February, 2020 to April, 2020.

2.2. Sample Size Determination

In this study, manual calculation of the sample size using Morgan and Krejcie (1970) formula was used for sample size determination as stated below:

$$S = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}$$

Where:

S = Required sample size

X^2 = The table value of the chi-square at desired confidence (3.841)

N = Study Population size (1367)

P = Population proportion assumed to be 0.50 since this would provide maximum sample size

d^2 = Degree of accuracy of the result expressed as proportion 0.050

$$\frac{3.841 \times 1367 \times 0.5 \times 0.5}{0.0025 \times 1366 + 3.841 \times 0.5 \times 0.5}$$

$$= \frac{1312.66175}{4.37525}$$

$$= 300$$

4.37525

Hence 300 respondents

2.3. Inclusion and Exclusion Criteria

Table 1: Socio demographic characteristics of respondents (n=300)

Characteristics	Frequencies	Percentages %
Gender		
Males	255	85
Females	45	15
Ages		
20-25	125	41.7
26-30	100	33.3
31-35	55	18.3
36+	20	6.7
Marital status		
Married	105	35
Single	140	46.7

Students who were on training at least for 6 month in the study area were included and Students who were on training, critically sick during data collection were excluded from the study.

2.4. Data Collection

Data was collected from eligible and willing participants using a pre-tested, structured questionnaire. Socio-demographic information including age, gender, and marital status, year of study and socio economic status was collected.

2.5. Data Analysis

Data were analyzed using Statistical Package for Social Science (SPSS) software version 16.0 at that time with the help of the Statistician. The descriptive statistical method was used to analyze frequencies and percentages.

2.6. Ethical Considerations

This study was conducted only After getting Approval from Ministry of Health Bauchi State, data collectors was informed about the study, then after Verbal and written Informed consent obtained from study subjects, Confidentiality was assured for all the information provided, no personal identifiers (anonymity) was used on the questionnaires.

3. RESULTS

3.1. Socio-Demographic Characteristics

A total of 300 respondents were interviewed, giving 100% response rate. Majority of respondents 255, (85%) were males. Among all, 125(41.7%) of respondents were 20-25 years of age. Of the study subjects, 140 (46.7%), were single, 105 (35%), were married. The vast majority 125 (41.7%) of respondents were in first year of study, 118(39.3%) were in second year of study and 57 (19%) were in third year of study (**Table 1**).

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Divorced	15	5
Widowed	40	13.3
Year of Study		
First year	125	41.7
Second year	118	39.3
Third year	57	19

From 300 study participants 115 (38.3%) had ever smoked cigarette, fourteen respondents (4.7%) were current cigarette smokers; however, 19 (6.3%) of the respondents bought cigarette in the past 30 days. 18 (6%) would allow cigarette smokers to smoke in their homes and majority of the respondents 279 (93%) have a friends who smokes cigarette. Eighty seven (29%) of the respondents smoked in the presence of non-smokers, although 245 (81.7%) of them had ever tried stopping to smoke. 248 (82.7%)

respondents wish to stop smoking. 228 (76%) of the respondents live with peoples who smokes cigarette. Majority of the respondents 282(94%) spent >20 Naira on cigarette smoking. Only 14 (4.7%) agree with smoking behaviour, 26 (8.7%) would allow smoking in household and majority 295 (98.3%) agree with banning smoking in public areas. All the respondents 300 (100%) would not allow children to smoke in the future

Table2: Prevalence and Practices of Cigarette smoking among respondents (n=300)

Characteristics	Frequencies	Percentages %
Have you ever smoked cigarette		
Yes	115	38.3
No	185	61.7
Have you ever tried smoking?		
Yes	125	41.7
No	175	58.3
Do you currently smoke?		
Yes	14	4.7
No	286	95.3
Do you allow cigarette smokers to smoke in your home?		
Yes	18	6
No	282	94
Have you smoked cigarette in the past 30 days?		
Yes	25	8.3
No	275	91.7
Have you bought cigarette in the past 30 days?		
Yes	19	6.3
No	281	93.7
Do you smoke in the presences of none smokers?		
Yes	87	29
No	213	71
Have you ever tried to stop smoking?		
Yes	245	81.7
No	55	18.3
Do you want to stop smoking now?		
Yes	248	82.7
No	52	17.3
Do you have a friend who smokes cigarette?		
Yes	279	93
No	21	7
Do you live with peoples who smokes cigarette?		
Yes	228	76
No	72	24
How much you spent on cigarette?		
10-20 Naira	18	6
>20 Naira	282	94
Do you agree with smoking behaviour?		
Yes	14	4.7
No	286	95.3

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Would you allow smoking in your household?		
Yes	26	8.7
No	274	91.3
Would you allow your children to Smoke in the future?		
Yes	0	0
No	300	100
Do you agree with banning smoking in public areas?		
Yes	295	98.3
No	5	1.7

Majority of the respondents 120 (40%), 110 (36.7%) mention that recreation and peer pressure as a reason why students smoke. Majority of the respondents knew that cigarette smoking could lead to lung cancer 298 (99.3%) and heart diseases 289 (96.3%). Majority of the respondents knew that cigarette smoking could lead to peptic ulcer disease (PUD) 278 (92.7%). However, majority of the respondents 269 (89.7%) knew that inhaling smoke from another person's cigarette could lead to lung disease. 298 (99.3%) of the respondents answer that they have an official policy banning smoking in

school buildings and all the respondents 300 (100%) were taught about the dangers of smoking. 266 (88.7%) of the respondents were taught about the reasons why people smoke. Majority 292 (97.3%), 286 (95.3%) of the respondents learned the importance to record tobacco use history and important to provide educational quitting materials.

However, 273 (91%), 259 (86.3%) of the respondents heard of nicotine replacement therapies and antidepressant use in cessation programmed (**Table 3**).

Table3: Knowledge of Respondents towards Cigarette Smoking (n=300)

Characteristics	Frequencies	Percentages %
Why do students smoke?		
Recreation	120	40
Proving manhood	55	18.3
Peer pressure	110	36.7
Other reasons	15	5
cigarette smoking lead to lung disease		
Yes	298	99.3
No	2	0.7
cigarette smoking lead to heart disease		
Yes	289	96.3
No	11	3.7
cigarette smoking lead to peptic ulcer disease		
Yes	278	92.7
No	22	7.3
inhaling smoke from another person's cigarette lead to lung disease		
Yes	269	89.7
No	31	10.3
Does your school have an official policy banning smoking in school buildings?		
Yes	298	99.3
No	2	0.7
During classes, were you taught about the dangers of smoking?		
Yes	300	100
No	0	0
During classes, were you taught about the reasons why people smoke?		
Yes	266	88.7
No	34	11.3
Did you learn that it is important to record tobacco use history?		
Yes	292	97.3
No	8	2.7
Did you learn that it is important to provide educational quitting materials?		
Yes	286	95.3

No	14	4.7
Have you ever heard of nicotine replacement therapies?		
Yes	273	91
No	27	9
Have you heard of antidepressant use in cessation programmed?		
Yes	259	86.3
No	41	13.7

4. DISCUSSION

In this study, the percentage of the prevalence of smoking among nursing students in Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria was found to be 4.7%. The prevalence rate was lower compared with the results from similar studies in Arab countries conducted among health-related students, including 46% in Kuwait [48], 17.2% in Jordan [49], 46.7% in Egypt [50] and 26.3% in Lebanon [51]. However On the other hand, this prevalence was also lower than the prevalence rate in some equivalent studies conducted on ages ranging from 18 to 28 years in Iran (9.8%) [52]. Even though smoking prevalence might be fairly low which is good from public health's perspective, the number of smokers and tobacco use may actually be large considering the entire population of the country. According to **Pampel, 2008** Nigeria had the largest number of smokers and yet among the countries with the lowest smoking prevalence of the 14 countries included in his study. At the other extreme, Namibia had the largest smoking prevalence among these studied countries which only amounted to 114,000 smokers. Smoking prevalence increases with age up to a point and then it falls.

In the current study, the prevalence rate of smoking was significantly affected by family income, that is, the percentage of smokers among students from low income families was higher than those from average and high income ones, this finding was found to be in conformity with the world health survey, which stated that the poorest men were over 2.5 times more likely to smoke than the richest men in numerous countries [53]. A possible reason also could be that students with a lower socio-economic status had more physical, psychosocial and emotional problems.

Peer pressure and recreation were found to be the main reasons for students becoming involved in smoking, while 'proving manhood' was a major reason for non-smokers' attitudes, according to this study; similar findings were reported by previous studies [54]. 38.3%

respondents in this study have ever smoked cigarette. This is higher than 20.5% reported by Adebisi in Oyo state, Southwestern Nigeria and lower than 46% reported by Odukoya in Lagos state in the same region [55, 56].

In this study, one of the predictors of cigarette smoking was sex whereby more percentage of males smoked cigarettes than females. According to a study in Jakarta (Indonesia), Guangdong (China) and Nepal, male predominance was reported in the habit of smoking, while in Zambia [57], in the Indian cities of Delhi and Goa, and in the Czech Republic, no gender differences have been observed [58]. Smoking is found to be strongly associated with male sex in almost all populations in studies conducted in Africa [59-64]. This may be because females are more socially restricted than male counter parts and mostly young people imitate and exercise what they observe from their elders, parents and friends. Furthermore, familial relationships including care and family related activities may protect females from involving in tobacco use [65].

Many of the respondents were knowledgeable about some aspects of the health risks associated with tobacco use. Student's cigarette smoking was significantly associated to year of study. Accordingly, as the year the students spent within the college increases, for instance from second year to third year according to our study, the prevalence of cigarette smoking is increasing. For this peer pressure, need to get relaxed from tension and aim to improve results than the previous semesters were the possible reasons for the increment. Most students also imitate what their seniors doing as if it is an indication of modernization.

5. CONCLUSION

This study concluded that low proportion of nursing students at Aliko Dangote College of Nursing Sciences Bauchi State, Nigeria smoked cigarettes. Sex, age and peer influence were identified as important determinants of cigarette smoking. There is a need for early

cost-effective interventions and education campaigns that target health science students.

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