



Statistical Analysis of Adult Nutritional Status and Cigarette Smoking in Kaura and Jama'a L. G. A, Kaduna State, Nigeria

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Abstract: This study was intended to apply statistical analysis to determine adult nutritional status and cigarette smoking in Kaura and Jama'a Local Government Area of Kaduna State, Nigeria. Four (4) major towns were selected purposively within the two LGA's namely Kafanchan, Manchok, Kaura and Kagoro respectively. Fifty 50 questionnaires were administered in each of the four selected towns in the study area, making a total of 200 questionnaires in all. Their dietary habit, food consumption, height and weight of the subjects were taken to determine the Body Mass Index (BMI). The result showed that there is correlation between quantity of cigarette consumed and nutritional status ($P < 0.05$). The result of the food frequency indicated that smokers consumed less fruit and vegetables, less meat and milk product respectively, however consumption of cereal is high (51%). The BMI revealed that 42% of subjects were undernourished. Most of this subject has smoking related diseases such as decrease in lung function, increase of heart attack, Respiratory diseases, asthma, and other health effects as a result of their smoking habits. Inference derived from this recommence that all form of advertisement and promotional activities of cigarette should be banned and health education on the risk should be encouraged to minimize cigarette smoking most especially among bachelors.

Keywords: Kaduna State, Cigarette Smokers, Adult Nutritional Status, Respiratory Diseases

1. Introduction

About 4000 chemicals have been identified in cigarette smoke, which include the most dangerous chemicals "nicotine, carbon-monoxide, arsenic, nitrous oxide, phenols acetone, acetylene, cyanide, formaldehyde, ammonia, methanol and strychnine" [1]. Most of the substances found in the cigarette smoke are carcinogenic which are capable of binding to the DNA molecule in the body cells to cause some genetic mutation and cancer. The suspended particle in the lungs tissue, which can cause lung disease and cancer over time, on the other hand carbon monoxide in cigarette smoke binds to hemoglobin resulting to impaired oxygen transport,

increase in heart rate and increase blood pressure [2].

According to World Health Organization (WHO, 2008) report that 75% of cigarette smokers are low income earners, who are unaware of the health hazard of smoking and are unable to purchase medical help when disease strikes. There are more than 13 millions active smokers in Nigeria out of which 11.5 million are men while 1.5 million are women [1, 2]. Smoking is known to be the biggest cause of preventable and premature death while on the other hand the life expectancy of smokers is cut short by 10-12 years and more than half of all smokers die from smoking-related diseases

[3]. Smoking causes diseases and reduces the health of the smokers in general and eventually may die of addiction in relation to poor nutrition.

Consequently, imbalance in nutritional status of adult in both macro and micro nutrients have been reported in cigarette smoking which may have an important role in the pathogenesis of diseases and other adverse effect related to smoking. It has also been observed that smokers are less likely to consume fruits and vegetable which are rich in natural antioxidants.

Antioxidants in food such as vitamin C, E, and A in fruit, lycopene in tomato, β -carotene in carrot and pumpkin, others are folate, calcium, [3, 4] Zinc and selenium which protect the body cells against the damaging effect of free radical generated in cigarette smoke. These free radicals are capable of decreasing immune system, tissue and cellular damage and increase risk of cancer [5, 6, and 11].

In the year 2000, smoking was practiced by about 1.22 billion people, predicted to rise to 1.45 billion people in 2010 and between 1.5 and 1.9 billion by 2025. Of the 1.22 billion smokers, 1 billion lives in developing nations of which Nigeria is one. The rate of smoking have declined in the developed countries [7] which in the developing countries tobacco consumption is rising by 3.4% yearly [7, 8, 9]. Smoking interferes with the body's ability to use nutrient.

Smoking is a health risk, a pattern of behavior usually acquired during adolescence. Youthful age is a time of experimentation and it is estimated that every day between 3000 and 5000 young people try their first cigarette. The most recent National Youth Tobacco Survey conducted by the United States Centre for Disease Control and Prevention found 28% of high school and 12% of middle-school students reported tobacco use. The smoking prevalence is high for individuals of 18 years or older who are unemployed [8, 9, 10].

The awareness of some of the dangers posed by smoking is low among black and white South Africans. The knowledge about the risks of cigarette smoking among adult in Nigeria was low. The earlier a smoker quits smoking the less the hazard, as evidence suggests that much of the projected mortality from smoking can be prevented by stopping. Little is known about smoking behavior, awareness of health hazards, and initiation of smoking among adolescents from Southern Kaduna, Kaduna State, Nigeria. We therefore decided to carry out a cross-sectional survey on the prevalence and factors influencing cigarette smoking and nutritional status among adults in Kaura and Jama'a Local Government Areas of Kaduna State, Nigeria.

2. Materials and Methods

The research was carried out in selected towns in two Local Government area located in southern Kaduna, Kaduna state Namely, Kaura Local Government and Jama'a Local Government area. The area is predominated by Kargoma Kagoro, Moroa, Fansuan, Kaninko, Jaba, Atakar ethnic group.

2.1. Sampling Technique and Population

Four (4) major towns were selected purposively within the two LGA's namely Kafanchan, Manchok, Kaura and Kagoro respectively. The minimum sample size was calculated using this Cochran formula $n = \frac{d^2 (p)(1-p)}{c^2}$ N was the minimum sample size, d was the standard deviation at 95% confidence interval. The p was the prevalence taken as 50% because it was unknown; c was the acceptable error taking as 5% and the minimum sample size of (n=259) was obtained. Fifty 50 questionnaires were administered in each of the four selected towns in the study area of study making up a total of 200 questionnaires in all. Sampling was basically based on observation of the act of cigarette smokers in targeted locations where smoking is a common habit like Motor Park, Hotels, beer parlors, night clubs, streets and brothels.

2.2. Assessment of Nutritional Status

Nutritional status of respondent were obtained using seven (7) days dietary recall of food frequency which shows a trend of different classes of food intake. Anthropometric data such as height and weight were also obtained to determine the body mass index (BMI) of the cigarette smokers.

2.3. Instrument for Data Collection

A semi structured questionnaire was designed and pre-tested for seven days before administration. Errors found where amendment and made appropriate in order to elicit information on the effect of cigarette smoking on adult nutrition. The questionnaire was divided into four sections namely: Demographic information, food frequency recall per week, medical history and cigarette smoking data by personal interview

2.4. Data Analysis

All analysis was done using the statistical package SPSS version 20.0. Descriptive and frequency analysis was performed for the subject characteristic and Pearson's correlation was used to test the association between quantity of cigarette smoke and subject nutritional status. P -value < 0.05 was considered statistically significant.

3. Results and Discussion

From the survey result obtained in Table 1 below, it was observed that majority of the age of the subject lies between 33-37 (34%) in Kafanchan, 23-27 (32%) in Manchok, 23-27 (28%) in Kaura and 43-47 (28%) in Kagoro on the other hand those aged above 53 participate less in smoking. In Kafanchan, Manchok, and Kaura males participate in smoking more in smoking while there was no significant difference gender in Kagoro. Marital status in Kafanchan, Manchok, and Kaura singles participate in cigarette smoking more while in Kagoro married play a significant part whereas Divorced separated and widowed engage less in cigarette smoking. The occupation of Kafanchan was found to be

business 27(54%), Manchok 22(44%) while in Kaura and Kagoro majority were farmers with 19(38%) and 25(50%) respectively and least occupation found as unskilled for Kafanchan, Manchok and Kagoro, whereas Business in

Kaura. Majority of the subjects in Kafanchan and Kagoro level of education was secondary and Polytechnic/college in Manchok and Kaura least educational status where observes as informal education primary and university.

Table 1. Socio-demographic features of Cigarette Smokers in Kaura and Jama'a L. G. A.

QUESTION	RESPONSE	KAFANCHANF (%)	MANCHOKF (%)	KAURAF (%)	KAGOROF (%)
AGE	18 – 22	1(2)	6(12)	7(14)	2(4)
	23 – 27	6(12)	16(32)	14(28)	2(4)
	28 – 32	9(18)	6(12)	12(24)	8(16)
	33 – 37	17(34)	11(22)	4(8)	5(10)
	38 – 42	12(24)	6(12)	7(14)	11(22)
	43 – 47	2(4)	3(6)	2(4)	14(28)
	48 – 52	3(6)	2(4)	2(4)	7(14)
GENDER	53 –above	0(0)	0(0)	2(4)	1(2)
	Male	34(68)	42(84)	39(78)	28(56)
	Female	16(32)	8(16)	11(22)	22(44)
MARITAL STATUS	Single	26(52)	25(50)	26(52)	16(32)
	Married	18(36)	21(42)	17(34)	26(52)
	Divorced	2(4)	1(2)	1(2)	3(6)
	Widowed	1(2)	2(4)	3(6)	3(6)
OCCUPATION	Separated	3(6)	1(2)	3(6)	2(4)
	Farmer	10(20)	13(26)	19(38)	25(50)
	Unskilled labor	6(12)	3(6)	8(16)	6(12)
	Civil Servant	7(14)	22(44)	13(26)	10(20)
	Business (Trader)	27(54)	7(14)	7(14)	9(18)
LEVEL OF EDUCATION	Informal Education	0(0)	5(10)	1(2)	3(6)
	Primary	9(18)	2(4)	6(12)	17(34)
	Secondary	28(56)	7(14)	16(32)	20(40)
	Polytechnic/college	8(16)	30(60)	23(47)	3(6)
	University	5(10)	6(12)	4(8)	2(4)

SOURCE: Survey questionnaire, 2016

The prevalence and perception of cigarette smoking subject who were sighted smoking by the researcher in Table 2, consent 50(100%) in Manchok and Kagoro while 1(2%) and 11(22%) in Kafanchan and Kaura rejected the fact that they smoke thought sighted smoking in Table 2. In

Kafanchan, Manchok and Kagoro high proportion of the subject have been smoking for more than 12 year while in Kaura lies between 5year to12 years. Nearly all the subject like smoking at Social occasion and when stressed only a few number like smoking when using toilet.

Table 2. Cigarette Consumption Prevalence and Perception per Day in Kaura and Jama'a L. G. A.

QUESTION	RESPONSE	KAFANCHANF (%)	MANCHOKF (%)	KAURAF (%)	KAGOROF (%)
Do you smoke cigarette?	Yes	49(98)	50(100)	39(88)	50(100)
	No	1(2)	0(0)	11(22)	0(0)
For how long	<1year	4(8)	12(24)	10(20)	4(8)
	2-4yrs	17(34)	7(14)	14(28)	11(22)
	5-12yrs	10(20)	10(20)	17(34)	15(30)
	12yr above	19(38)	21(42)	9(18)	20(40)
	After meal	14(19)	13(23)	13(26)	5(10)
When do you often like taking cigarette?	When stressed	19(25)	15(26)	15(30)	8(16)
	At social occasion	28(37)	24(42)	14(28)	29(58)
	Toilet	14(19)	5(9)	8(16)	8(16)
	Positively	1(2)	3(6)	6(12)	3(6)
How does the current cost affect your rate of consumption?	Negatively	9(18)	15(30)	13(26)	7(14)
	No effect	15(30)	12(24)	11(22)	7(14)
	Don't Know	11(22)	6(12)	5(10)	14(28)
	Thinking of quit	14(29)	14(28)	15(30)	19(38)
	Drugs	14(28)	12(24)	6(12)	3(6)
Which of the following(s) do you take to reduce the negative effect?	Vitamin Supplement	5(10)	16(32)	8(16)	8(16)
	Food Supplement	20(40)	19(38)	34(68)	19(38)
	Contraceptives	2(4)	0(0)	2(4)	2(4)
	Any other specify	9(18)	3(6)	0(0)	18(36)
Are you aware of any substance that clean up system	Yes	20(40)	31(62)	16(32)	13(26)
	No	26(52)	19(38)	34(68)	15(30)
Advised to limit consumption of any foods.	Yes	13(26)	20(40)	16(32)	11(22)
	No	37(74)	30(60)	34(68)	39(88)

SOURCE: Survey questionnaire, 2016

It was also observed from this research that most of the subject smoking consumes more of cereal/tubers, milk, beef and fat and oil, the metabolism of cereal, tubers, milk, beef and fat and oil most frequently leads to the generation of free radicals (reactive oxygen species) also know as oxidant. Vegetables and fruits are less consumed as shown in Table 3. Vegetables and fruit which are rich in antioxidant capable of reducing the negative effect from the cigarette smoke on the

other hand are not frequently consumed. Due to the fact that Free radicals are implicated in many diseases including diabetes mellitus, arthritis, cancer, ageing, etc. During the face to face contact with the subject, they were advised by the researcher to consume more vegetables and fruit in the treatment of these diseases because antioxidant therapy has gained utmost importance.

Table 3. Food frequency week recall location Kafanchan.

Frequency Group	1x	2x	3x	4x	5x	6x	Occasional	Never	Total
Cereals/tuber	44	21	67	28	28	70	10	4	272
Milk/product	29	20	50	31	39	59	30	8	266
Meat/beef	35	23	36	45	41	65	21	0	266
Vegetables	28	12	25	23	31	109	15	0	243
Fruits	23	20	30	28	28	85	25	1	240
Fat and Oil	23	17	39	14	8	60	86	14	261

Table 4 below shows that 45 out of every 200 subject have suffered from cough while 20 out of every 200 subject are still suffering from cough for a period over 5 years. The result also shows that 30 out of every 200 subject have suffered from chest pain while 15 out of every 200 subject are still suffering from chest pain for a period over 5 years.

Table 4. Showing subjects suffering/or have suffered from any of the following disease?

Disease	Suffered	Suffering	1yr	2yr	3yr	4yr	5yr>
Cough	47	20	15	10	6	0	15
Chest pain	30	15	3	8	4	2	10
Hypertension	3	2	1	0	2	0	1
Others disease	5	3	2	0	0	0	6

SOURCE: Survey questionnaire, 2016

Table 5. Correlation between nutritional status and quantity of cigarette consumed.

Correlation analysis		Nutritional status	Quantity consumed
Nutrition status	Pearson correl.	1	-0.471
	Sig. (1-tailed)		0.056
	N	188	188
Quantity consumed	Pearson correl.	-0.471	1
	Sig. (1-tailed)	0.056	
	N	188	188

4. Conclusion

Demographic factor of cigarette consumption in younger people was lower with higher consumption as they get older. From the study, cigarette consumption is lower in subject between the age of 10-19 and higher percentages of smoker were between ages of 20-29 years. The economic gradient in cigarette consumption indicates that the risk of smoking-related diseases is higher among low income earners. The outcome of this work showed a negative correlation at 0.05 Level of Significant between quantity of cigarette consumed and nutritional status of smokers. From this study the

researcher recommend that Parents and adults that smoke cigarette are advised to adapt more responsible attitude towards smoking at home and in public places. All forms of tobacco advertisement and promotional activities should be banned. Government at all levels and NGO’S should embark on more anti-tobacco campaigns to create awareness on the adverse effect of cigarette smoking in higher institutions of learning.

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