

KNOWLEDGE OF RISK FACTORS AND HEALTH IMPLICATIONS OF FAST FOOD CONSUMPTION AMONG UNDERGRADUATE IN NIGERIAN POLYTECHNIC (CASE STUDY OF THE FEDERAL POLYTECHNIC, BAUCHI)

ADEBUSOYE MICHAEL¹, SAMUEL E.O² & ANTHONY GLORIA³,

^{1&3}The Federal Polytechnic, Bauchi, Department Of Nutrition & Dietetics, Bauchi -State. ²The Federal Polytechnic, Bauchi, Department Of Food Science & Technology, Bauchi -State.

ABSTRACT

Adolescent pattern of fast foods consumption and their perception of this practice, as a risk factor for Non-Communicable Diseases (NCDs) have not been fully explored. This study was designed to assess fast food consumption pattern and the perception of it as a risk factor for NCDs among undergraduates of Federal Polytechnic, Bauchi. The study was descriptive cross-sectional in design. One hundred and eighty five students were recruited using systematic random sampling method from the two halls of residence. A structured questionnaire was used to assess the consumption pattern of fast foods. Simple descriptive statistical tools such as frequency counts, percentages, mean, standard deviation and T-test were computed using SPSS version 16.0. The age range of respondents was 18-34 years, 58.4% were males, 93.5% singles and 51.4% of their parents were employed. Majority (100%) were aware of fast foods and (75%) agreed to its implications as NCD. The most consumed fast foods were buns/puff puff 35(18.9%), doughnut 30(16.2%), egg roll 25(13.5%), noodles 24(13%). 56(30.3%) consumed thrice in a week and majority 71(38.4%) attached time constraints to high consumption of fast food. It was revealed that a higher social pressure from peers, time constraints, class pressure and school programme had the strong influence on high percentages of higher institutions' students consume fast foods and. Therefore nutrition educational campaigns for campus food outlets or vendors and behavioural change communication on healthy nutrition and lifestyles among young people are hereby advocated. I gratefully acknowledge Management of the Federal Polytechnic Bauchi, my research team and the participants for their contributions toward the success of the project.

Keywords: *Fast food consumption, Health implication, Nigerian Polytechnic*

INTRODUCTION

One of the most distinguished lifestyle is the consumption of fast foods as daily eating pattern. Consumption of fast foods has gradually become a common lifestyle in Nigeria especially in urban areas and among young people in spite of the associated adverse health consequences. However, the effect of fast food on risk of non-communicable diseases like obesity and type 2 diabetes has received little attention. We aimed to investigate the association between reported fast-food habits and knowledge in the Nigeria polytechnics. Fast foods essentially refer to the mass production of speedy food which is of standardized size, shape, colour and taste (Schlosser, 2001) Fast foods are commonly recognized to have poor nutritional quality, They are zero in nutritional value and often high in fat, salt, sugar, and/or calories. (Ludwig et al 2001), they tend to be low in iron, Calcium, riboflavin, and vitamin A and C (Mahan and Escott-Stump, 2004). Consumption of high-fat fast foods contributes to higher energy and fat intake and lower intake of healthful nutrients (Paeratakul et al, 2003), it is also notable that changes in eating patterns such as increases in meals eaten away from home, portion sizes, meal-skipping and fast foods consumption may be involved in this trend(Young and Nestle,2002) When students first enter college, their diets often deteriorate and they often gain weight (Haveman et al, 2003). The weight gain may be related to sedentary lifestyle and changes in foods intake and dietary pattern. Irregular class schedules, part-time jobs and varied homework loads can disrupt eating pattern among the college students leading to unhealthy eating habits which may be hard to break (shehu et al, 2010).A study by Paul Johnson and Paul Kenny at Scripps research institute (2008) suggested that junks food consumption alter the brain activity in manner similar to addictive drugs like cocaine or heroin. A recent report suggests that pregnant mothers who eat high sugar and high fat diets have babies who are likely to become junk food junkies themselves, this happens because the high fat and high sugar diet leads to changes in the fetal brain's reward pathway, altering food preferences.(Z. Y. Ong, et al 2011).. Fast food consumption has strong positive association with weight gain and insulin resistance, suggesting that fast food increases the risk of obesity and type2 diabetes.

METHODS AND PROCEDURES

Study Design: The study was a cross-sectional descriptive survey.

Study Area: The study was carried out within hostels of the Federal Polytechnic Bauchi.

Study population: The study was conducted among undergraduate students residing in the hostels of Federal Polytechnic, Bauchi.

Inclusion and Exclusion Criteria: The study included students living in the hostels of the Federal polytechnic, Bauchi. Excluded students residing outside the hostels of the Federal Polytechnic, Bauchi.

Sample Size

$$N = \frac{Z^2 \times P (1 - P)}{D^2}$$

Where, N = required sample size

Z = value of confidence at 95% (1.96)

P = 50%, since the prevalent rate of fast foods consumption in Nigeria is not available, 50% was assumed.

Therefore, $N = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2}$

$$0.05^2$$

N = 384, When 10% non-response rate was added. Approximated to 400 respondents in the study.

Sampling Procedure

There were two main halls of residence (males and females) for undergraduate students within the Polytechnic. A minimum of 250 respondents per hall of residence were selected in a systematic random manner.

Instrument of Data Collection

Semi-structured questionnaire was used to collect demographic information and weighing scale was used to measure the weights, heights measured using the heightometer and an abridged food frequency questionnaire was used to assess the frequency and type of fast foods consumed by the students.

Data Collected

The data collected includes; weight, height and food frequency.

Data Analyses

Measurements of weight and heights were used to derive body mass index and the nutritional anthropometric status of the respondents was determined using body mass index.

Food frequency questionnaire was used to determine consumption pattern of fast foods.

Statistical analysis

Data collected from the questionnaires were analysed using Statistical Package for the Social Sciences (SPSS) version 16, Simple descriptive statistics (frequency counts, percentages, means proportions) were used to compare different variables.

RESULTS

Table 1.0: Demographic data of the respondents

Age (years)	Frequency (n)	Percentage (%)
18 – 23	101	25.2
24 – 29	232	58.0
30 – 35	69	16.8
SEX		
Male	291	72.7
Female	109	27.3
Amount spent weekly on fast food (Naira)		
<200	20	5.0
200-299	60	15.0

300-499	106	26.5
500-799	110	27.5
800-999	34	8.5
1000-1499	18	4.5
1500-1999	38	9.5
2000 or more	14	3.5
Tribe		
Hausa	216	54.0
Fulani	19	4.8
Yoruba	116	29.0
Ibo	34	8.5
Others	15	3.7
Parent's occupation		
Civil servant	195	48.7
Trader	95	23.8
Farmer	92	23.0
Retired	18	4.5
Total	400	100

Table 1 shows that the age of respondents ranges from 18 to 34 years, 74.6% were males, 93.5% were singles and 51.4% of the respondents' parents were employed.

Table 2.0: Fast food consumption parameters

Fast foods mostly consumed

Items	frequency (n)	percentage (%)
Buns/puff puff	73	18.2
Cake	45	11.2

Biscuit	63	15.7
Doughtnut	53	13.2
Egg roll	29	7.2
Meat pie	25	6.2
Noodles	51	12.7
Carbonated drinks	25	6.2
Beef roll	21	5.7
Chin chin	15	3.7

Why do you consume fast foods?

-Limited time	148	37.0
-Availability	74	18.5
-Taste	64	16.0
-Hunger	96	24.0
-N/A	18	4.5

Perceptions of fast food consumption and its risk in developing NCDs

-High sugar	154	38.5
-High salt	64	16.0
-High fat	74	18.5
- Additives	69	17.3
-Cholesterol	39	9.7

Frequency of consumption per week

- Once	56	14.0
-Twice	89	22.3

-Thrice	117	29.3
-Four times	119	29.7
-Everyday	19	4.7
Total	400	100

Table 3.0: Nutritional Anthropometry

Body Mass Index (BMI)	Classification	Males		Females		Total	
		N	%	N	%	N	%
Principal cut-off							
Points							
<18.50	Underweight	41		11		52	
<16.00	Severe thinness	11		2		13	
16.00-16.99	Moderate thinness	14		5		19	
17.00-18.49	Mild thinness	16		4		20	
18.50-24.99	Normal range	130		58		188	
25.00-29.99	Overweight	60		19		79	
≥30.00	Obese	40		17		57	
30.00-34.99	Obese class I	25		11		36	
35.00-39.99	Obese class II	15		6		21	
≥40.00	Morbid Obese	20		4		24	
Total		291(100)		109(100)		400(100)	

In Table 5, the highest range of allowance was 10000 – 20000 which had 70.8% and the highest range of amount expended by respondents was 1000 – 2000 which had 37.3%

Table 4 show that (15.7%)of the respondents disagreed with the view that frequency of fast food consumption has no effect on the body and 84.3% agreed that fast food on its own can lead to non-communicable diseases. More than half (116%) of the respondents had no idea of how fast food consumption can lead to non-communicable diseases. Of the 156 who had an idea of the link, 23.8% each opined that fast foods can lead to NCDs because they contain cholesterol, sugar, salt and fats which accumulate in the body.22% agreed that fast food consumption is associated with weight gain and 20.5% agreed with the view that fast food consumption increases one’s chance of developing heart diseases. 26.5 of the respondents agreed with the view that fast food consumption predisposes one to developing diabetes.

Table 3 shows that overall 97.3% of the respondents consume fast foods weekly. Of these 180, 30.8% took it four times in a week, 56% thrice in a week and (20%) twice a week. Others are shown on table 5. The types of commonly consumed were combination of flour products and carbonated drinks (58.9%) high in carbohydrates, fats and sugar which include meat pie, doughnut, beef roll, egg roll, and carbonated drink (1.2 followed by flour products (36.8). Only 1.1% of the respondents preferred fast foods to meals prepared at home

Total	400	100
-------	-----	-----

Table 2 shows that awareness of fast foods was high (99.5%) among the respondents and examples of types of fast foods listed included meat pie (4.9%), beef roll/ sausage (%), egg roll (13.5%), doughnut (16.2%), ice cream (%), cake (7.0%), noodles(18%) and carbonated drinks (3.8%). Fast foods are believed to be part of normal diet (64.3%)

DISCUSSION

The percentage of those who consume fast food every day in this study is lower than the 42.5% reported by Olumakaiye et al (2008). 30.8% took it four times in a week, 56% thrice in a week and (20%) twice a week. The type of fast foods commonly consumed by majority of the respondents were flour-based products found to be high in carbohydrates, fats and sugar as similarly documented by Olumakaiye et al (2008). The types of fast foods commonly consumed were flour products (58.9%) high in carbohydrates,

fats and sugar which include meat pie, doughnut, beef roll, egg roll, followed by combination of flour products and carbonated drinks (36.8%) and carbonated drink (1.2%), Majority (64.3%) also believed that fast foods are part of normal diet which is contrary to the description of fast food by Wart (2006) who described it as foods that do not belong to a major food group. Only 1.1% of the respondents preferred fast foods to meals prepared at home. Majority of the respondents knew that fast foods are prepared with high sugar content (40%), high fat content (23.8%), and additives (16.2%). This is supported by Wart (2006) who stated that any food item that is high in sugar, salt and fat can be referred to as junk or fast food. It was believed among majority (84.3%) of the respondents that fast food consumption is one of the risk factors for non-communicable diseases. This is consistent with earlier research works which found that fast foods are a contributing factor in the etiology of NCDs such as hypertension and cardiovascular diseases Puoane (2005). (15.7%) of the respondents disagreed with the view that frequency of fast food consumption has no effect on the body and 84.3% agreed that fast food can lead to non-communicable diseases. 26.5% of the respondents agreed with the view that fast food consumption predisposes one to developing diabetes. This corroborates the WHO (2000) report which stated that fast foods are high in fat, sugar and sodium which contribute additional calories, excess body fat and increase body weight. It further stated that being overweight or obese increases the likelihood of suffering from coronary heart diseases, diabetes and hypertension. There are various misconceptions which exist among the respondents as regards the relationship between fast food consumption and development of non-communicable diseases.

Excessive consumption of fast foods can lead to non-communicable disease so therefore there is need to minimize the frequency of consumption in order to avoid diseases related to fast foods.

The belief of respondents that excessive consumption of fast foods has adverse effect on health is corroborated by Rijal's report that being overweight is a risk factor for diabetes and that consuming excess fast foods increase this risk and those of Tucker and Buranapin who documented that the movement towards more fats, sugar, salt and refined foods moves beyond the optimal nutrient intake adequacy state to one in which diets contribute to rapidly escalating rates of chronic diseases

CONCLUSION

In conclusion this study has shown that consumption of fast foods among undergraduates is increasingly becoming an emerging trend. It is a major source of energy, dietary fat and animal protein though it was shown to be a poor source of micronutrients which

consequently increases the susceptibility to the already high prevalence of non-communicable diseases especially in developing countries. . Despite there was a high level of awareness and knowledge of the constituents of fast foods and its risk for developing NCDs in future, respondents still engage in the consumption of this category of foods.As a result, there is a need to incorporate nutrition education into students' curriculum with a view to equipping them with necessary nutritional knowledge on how to make rational and healthy fast food choices.

RECOMMENDATION

It is therefore suggested that nutrition education programme should be instituted in institutions of higher learning with emphasis on the promotion of healthy dietary intake and food choices while highlighting the harmful effects of excessive consumption of fast foods. To control the amount and kind of fat one eats and help people avoid junking up the food they eat, here are few ideas which will help. These included;

1. Limiting intake of meat, seafood and poultry to not more than five to seven ounce per day.
2. Eating chicken or turkey (without skin) or fish in most of your meals.
3. Choose lean cuts of meat, trim all the fats you can see and throw away that fat that cooks out of meat.
4. Eat not more than a total of five to eight teaspoons of fats and oils per day for cooking, baking and salads.
5. Eat only low fat dairy products.
6. Preparing foods broiled, boiled or baked not fried.
7. Trying cooking with canola or olive oil instead of vegetable shortening, butter or magazine.
8. Drinking water instead of soft drinks, tea or fruit juice drinks.
9. Eating dessert in moderation – take one cookie instead of two
10. Buying processed foods that are lower in calories, fats, cholesterol, sodium and sweeteners (including corn syrup, honey and concentrated fruit juice.
11. Switch to whole grain breads and cereals.

12. Substitute two egg whites for one whole egg
13. Eating fish once or twice a week (baked or broiled, not fried or breaded)
14. Selecting oils, cooking oils and margarines made with unsaturated fats
15. Replacing snack items such as potato chips, salted nuts and crackers with fresh fruit, unsalted, unbuttered popcorn.

EFERENCES

- Aladelokun D., 2006. Health freedom activists warn of the dire consequences of abandoning natural foods. Saturday Punch, June 24:A5.
- Allamani A. Addiction, risk, and Resources. *Subst Use Misuse* 2007; 42:421-39.
- Alizadeh M, Ghabili K: Health related lifestyle among the Iranian medical students. *Res Biol Sci* 2008,3(1):4 -9.
- Arulogun O.A and Owolabi M.O., (2011) 'Fast Food Consumption Pattern among Undergraduates of the University of Ibadan, Nigeria: Implications for Nutrition Education *J. Agric. Food. Tech.*, 1(6) 89-93
- Akbay C, Tiryaki GY and A Gul Consumer Characteristics Influencing Fast-food Consumption in Turkey. *Food Control* 2007; 18: 904-913.
- Bandini LG, Vu D, Must A, Cyr H, Goldberg A, Dietz WH. Comparison of High-calorie, low-nutrient-dense food Consumption among obese and non-obese adolescents. *Obes Res* 1999; 7:438- 43.
- Bayol SA, Macharia R, Farrington SJ, Simbi BH, Stickland NC. Evidence that A maternal "junk food" diet during Pregnancy and lactation can reduce Muscle force in offspring. *Eur J Nutr* 2009; 48: 62-5.
- Bourne, L., Lambert, E.V, K. Steyn, 2002. Where does the black population of South Africa stand on the nutrition transition? *Public Health Nutrition*, 5(1A): 157-162.
- Brendan O'Neill. Is this what you call Junk food? [Internet] 2006 [Last Up-dated: Thursday, 30 November 2006, 18:48 GMT] Available from: http://News.bbc.co.uk/2/hi/uk_news/Magazine/6187234.stm
- Dixon HG, Scully ML, Wakefield MA, White VM, Crawford DA. The effects Of television advertisements for junk Food versus nutritious food on Children food attitudes and

- Preferences. SocSci Med 2007; 65:1311-23
- Dowda M, Ainsworth B, Addy C, Saunders R, Riner W: Environmental influences, physical activity and weight status in 8 to 16 year olds.
- Dugdale, D.C. 2009. "Fast Foods" MedlinePlus Medical Encyclopedia, Division of General Medicine, Department of Medicine, University of Washington School of Medicine.
- Driskell JA, Kim Y-N, Goebel KJ. Few differences found in the typical eating and physical activity habits of lower-level and upper-level university students. J Am Diet Assoc 2005;105:798 - 801.
- Fister K. Junk food advertising Contributes to young Americans'Obesity. BMJ 2005; 331: 1426.
- Hatloy A, Torheim LE, A. Oshaug, 1998. Food variety – a good indicator of nutritional adequacy of the diet? A case study from an urban area in Mali, West Africa. European Journal of Clinical Nutrition 1998; 52:891-8.
- Huang TTK, Harries KJ, Lee RE, Nazir N, Born W, Kaur H:Assessing overweight, obesity, diet and physical activity in college students. Jam Coll Health 2003,52(2):83– 86.
- Hertzler AA, Frary RB. Family factors and fat consumption of college students. J Am Diet Assoc 1996;96:711 - 4.
- Lungiswa P. T., 2007. Urbanization and lifestyle changes related to non-communicable diseases: An exploration of experiences of urban residents who have relocated from the rural areas to Khayelitsha, an urban township in Cape Town. MPH Minithesis. Department of School of Public Health, University of the Western Cape, Cape Town. Pp. 8-15
- Ludwig DS: Fast-Food Habits, Weight Gain, and Insulin Resistance (the CARDIA Study): 15-year prospective analysis. Lancet 2005,365 :36-42.
- McGraw Hill stump S.,(2008) "Food And Nutrition Therapy" 12th edition, Mc- Graw Hill USA pp 246-259
- Nelson MC, Story M, Larson NI, Neumark-Sztainer D, Lytle LA: Emerging adulthood and college-aged youth: An overlooked age for weight-related behavior change. Obes 2008,16(10):2205 – 2211.
- Nisar N, Qadri MH, Fatima K, Perveen SJ. Dietary habits and life style among The students of a Private Medical University, Karachi. Pak Med Assoc 2009; 59: 98-101.

- OchiengH Eating to Death. Sunday Monitor , 109: 1 -2. Kampala, Uganda 2009.
- Olumakaiye M.F, Ogbimi G.E, Ogunba B.O., K.O. Soyebo, 2008 Snacking as a contributor to overweight among Nigerian Undergraduate Students. Proceedings of the 3rd Africa Nutritional Epidemiology Conference. P.68
- Paeratakul, S. Ferdinand, D.P. Champagne, C.M. Ryan, D.H. Bray, G.A., (2003): Fast food consumption among US adults and children, dietary and nutrient intake profile. Am Diet Assoc. Oct; 103(10):1332-8
- Payne, W.A. D.B. Hahn 1997. Understanding your health. 5thedition. New York: WCB, McgraHill. pp.135.
- Pei-Lin, H., 2004. Factors influencing students' decisions to choose healthy or unhealthy snacks at the University of Newcastle. Aust. J. Nurs. Res., 12(2): 83-91.
- Puoane, T., G.D. Hughes, 2005 Impact of the HIV/AIDS pandemic on non-communicable disease prevention. South African Medical Journal, 95(4): 228-229.
- Raza H, Chaudhry S, Kadir M: Knowledge and practice of healthy lifestyle and dietary habits in medical and non-medical students of Karachi, Pakistan. J Pak Med Assoc 2009,59(9):650 -655.
- Rijal S., 2007. Non-communicable diseases cause half of total deaths Copyright 2000-2007 India. Kantipur Publications Pvt. Ltd
- Robbins, G., Powers, D., S. Burgess, 1999. A wellness way of life. 4thedition. Toronto. WCB.
- Satalic Z, Baric IC, Keser I:Diet quality in Croatian university students: Energy, macro-nutrient and micro-nutrient intakes according to gender. Int J Food S ci Nutr 2007,58(5):398 - 410.
- Savige GS, Ball K, Worsley A, Crawford D: Food intake patterns among Australian adolescents. Asia Pac J ClinNutr 2007,16:738 -747.
- Schlosser, E. 2001: Fast food Nation. Houghton Mifflin Company.
- Story, M., D. Neumark-Sztainer and S. French, 2002. Individual and environmental influences on adolescent eating behaviors. J. Am. Dietetic Assoc., 102: 40-51.
- Stang J.,(2008) Nutrition in Adolescence In Mahan K., Escott- 1. Haddad L., 2003. Redirecting the diet transition: what can food policy do? Development Policy Review, 21(5-6): 599-614

- Steyn, N., Burger, S., Monyeki, K.D., Alberts, M., G. Nthangeni, (2001. Seasonal variation in dietary intake of the adult population of Dikgale. South African J. Clin. Nutr, 14(4): 140-145.
- Silliman K, Rodas-Fortier K, Neyman M: A survey of dietary and exercise habits and perceived barriers to following a healthy lifestyle in a college population. Californian J Health Promot 2004,2 (2):10-19
- Spears MC. Foodservice organizations: a managerial and systems approach. Upper Saddle River (NJ)7 Prentice Hall; 2003.
- Sneed J, Holdt CS. Many factors influence college students' eating patterns. J Am Diet Assoc 1991;91:1380.
- Taylor JP, Evers S, mckenna M. Determinants of healthy eating in Children and youth. Can J Public Health 2005: S20-6, S22-9.
- Tucker K.L., S. Buranapin, 2001. Nutrition and ageing in developing countries. Journal of Nutrition; 131:2417S-23S
- World Health Organization, 2000. Obesity: preventing and managing the global epidemic.
- Wart P.J., 2006. What is junk food? Health Plus. Retrieved on July, 2009 from <http://vanderbiltowc.wellsources.com/dh/content.asp?ID=260>.
- Washi, S.A. and M.B. Ageib, 2010. Poor diet quality and food habits are related to impaired nutritional status in 13 to 18 year old adolescents in Jeddah. Nutr. Res., 30: 527-534.
- Webb E, Ashton CH, Kelly P, Kamah F: An update on British medical students' lifestyles. Med Educ 1998,32:325 - 331.
- Young, L.R and Nestle, M. 2002: the contribution of expanding portion sizes to the US obesity epidemic. Am J Public Health; 92: 246-249.
- Yahia N, Achkar A, Abdallah A, Rizk S: Eating habits and obesity among Lebanese university students. Nutr J 2008,7(32). doi:10.1186/1475-2891-7-32.
<http://www.nutritionj.com/content/7/1/32>.