

KOLA NUT; A FRIEND OR A FOE OF TERTIARY EDUCATION STUDENTS IN NIGERIA

DR. ADAYONFO E. O.

ABSTRACT

Despite its common use, there is a dearth of research on kola nut. This study investigated whether there was any association between kola nut use and general psychiatric morbidity; and also sought to determine socio-demographic risks factors for kola nut use. Five hundred full time undergraduate students from the University of Benin were recruited via multistage sampling technique. The instrument consisted of socio-demographic variables, 28-items general health questionnaire (to screen for general psychiatric morbidity) and the stimulant section of the World Health Organisation Questionnaire for Student Drug Use Surveys. There was found to be a significant association between current use of kola nut and general psychiatric morbidity whereas no socio-demographic variable was associated with kola nut use. Consequently students will need to avoid the use of kola nuts in order to maintain mental health.

INTRODUCTION

Kola nut is the seed of a tree that belongs to the sterculiaceae family and there are two main tropical species; *cola nitida* and *cola acuminata*. The two main constituents are caffeine and theobromine; but its pharmacological/toxicological effects are traceable to the caffeine content. The consumption of kola nut dates back to centuries¹. Kola nut belongs to the stimulant class of psychoactive substance since it contains caffeine²; caffeine containing stimulants are the most widely used world wide³. This may be understood from the stand point of the fact that kola nut is classified as a stimulant not under legal control, it is cheap, widely available, acceptable and freely used^{4,5}.

The use of kola nut as part of several cultural practices is well known in Nigeria². Kola nut is used during weddings, naming ceremonies, house-warming and entertainment of visitors. It is also used during worship of deities, and for divination⁶. Students chew kola nut to keep awake to study because it prevents sleep⁷⁻¹⁰; thus stimulants are also known as "study drugs", "cramming drugs"¹¹⁻¹³.

Researchers seem to have focused more on other stimulants like amphetamine and cocaine even though they appear to agree that the use of kola nut is commoner in Nigeria; for example Bernard, Denehy and Keefauver¹⁴, Adelekan⁷, Eeguranti⁸ and Igwe, et al⁹, Oshodi, Aina and Onajole¹⁰ and Yunusa et al¹⁵, all reported kola nut as one of the most commonly used stimulant. The aims of this study were to determine the current prevalence rate of kola nut use, investigate if there was any significant association between kola nut use and general psychiatric morbidity and find out

KEYWORDS: *Kolanut, Students, Psychiatric morbidity*

**Corresponding Author:*

DR. ADAYONFO E. O.

Department of Mental Health, University of Benin Teaching Hospital, Benin City, Nigeria.

socio-demographic factors associated with kola nut use; and therefore begin to attend to the deficit of information on kola nut use⁵.

METHOD

The research was carried out among undergraduate students of the University of Benin, Nigeria. Multistage sampling technique was used to recruit 500 full time undergraduate students (across the Faculties) who gave written informed consent, after ethical approval was obtained from the University of Benin and the University of Benin Teaching Hospital Ethics and Research committee; confidentiality and anonymity were observed. The instrument included socio-demographic variables, 28-items general health questionnaire (to screen for general psychiatric morbidity)¹⁶ and the stimulant section of the second part of the World Health Organisation Questionnaire for Student Drug Use Surveys,¹⁷ The General Health Questionnaire has been validated and found to have acceptable sensitivity and specificity of 75% and 83% respectively^{18,19}. The World Health Organisation Questionnaire for Student Drug Use Surveys was used to elicit responses on the

use of kola nut. The data was collected over 10 days and was analysed using the Statistical Package for Social Sciences (SPSS) version 16.0²⁰.

RESULT

Four hundred and ninety six questionnaires were returned. This yielded a response rate of 99.2%. But 14 of the returned questionnaires had many missing data or inconsistent responses or both and were therefore discarded. Thus, a total of 482 (96.4%) instruments were analysed. Table I shows that the current point prevalence rate of kola nut use was 16% while tables IIa through IIc show that of all the respondents' characteristics considered, only general psychiatric morbidity significantly differentiated between current kola nut users and non users. The percentage of kola nut users was higher among cases of general psychiatric morbidity than non-cases whereas that of non-users was higher among non-cases of general psychiatric morbidity.

DISCUSSION

The current point prevalence rate of kola nut use was 16.0%. This is similar to the 15.8% reported among commercial bike

Table I.

The current prevalence rate of kola nut use

	Frequency	Percentage
Current users of kola nut	77	16.0
Non-users	405	84.0
Total	482	100.0

Table IIa.
The Association between current kola nut use and respondents' characteristics

Variable	Kola nut users		non-users		χ^2
	N	%	N	%	
General psychiatric morbidity:					
Cases, N= 178	43	24.2	135	75.8	14.08*
Non-cases, N= 304	34	11.2	270	88.8	
Sex:					
Male, N=277	45	16.2	232	83.8	0.04
Female, N=205	32	15.6	173	84.4	
Age:					
15-26 years, N=464	74	15.9	390	84.1	0.01
27-41 years, N=18	3	16.7	15	83.3	
Marital status:					
Single, N=471	76	16.1	395	83.9	0.47
Married, N=10	1	10.0	9	90.0	
Separated, N=1	0	0	1	100.0	
Religion:					
Christianity, N=474	75	15.8	399	84.2	1.74
Islam, N=6	2	33.3	4	66.7	
Others, N=2	0	0	2	100.0	
Years already spent in the university:					
1-2, N=402	60	14.9	342	85.1	1.99
3-8, N=80	17	21.2	63	78.8	
Father's educational status:					
No formal education, N=16	2	12.5	14	87.5	0.67
Some primary and completed primary education, N=57	9	15.8	48	84.2	
Some secondary and completed secondary education, N=114	16	14.0	98	86.0	
Incomplete tertiary and completed tertiary education, N=295	50	16.9	245	83.1	
Family set up:					
Monogamous, N=386	56	14.5	330	85.5	3.11
Polygamous, N=96	21	21.9	75	78.1	

* = significant at $p < 0.001$

Table IIb.
The Association between current kola nut use and respondents' characteristics

Variable	KOLA NUT USE		NONUSE		χ ²
	N	%	N	%	
Parental relationship:					
Not applicable (parents don't live together), N=91	11	21.6	40	78.4	3.56
Friendly, N=422	53	14.9	359	85.1	
Not friendly (they quarrel a lot), N=9	3	33.3	6	66.7	
Difficulty in paying school fees or buying school materials:					
Sometimes, N=180	25	15.8	135	84.4	0.05
Always, N=18	3	19.7	15	83.3	
No, N=304	49	18.1	255	83.9	
Religiosity:					
Very religious (I pray regularly), N=303	46	14.9	258	85.1	1.90
Just religious (I pray occasionally), N=160	27	18.9	133	83.1	
Not religious (I hardly pray), N=18	5	26.3	14	73.7	
Faculty:					
Education, N=45	8	17.8	37	82.2	6.38
Social and Management Science, N=298	31	12.1	225	87.9	
Applied sciences (Pharmacy, BMS, Life sciences), N=102	21	20.8	81	79.4	
Pure sciences (physical sciences), N=79	17	21.5	62	78.5	
Birth position among father's children:					
First, N=121	18	14.9	103	85.1	2.32
Second, N=77	12	15.8	65	84.4	
Third, 78	10	13.2	68	86.8	
Fourth, 86	9	13.6	57	86.4	
Others N=142	26	19.7	114	80.4	
Residence:					
Home, N=36	3	8.3	33	91.7	1.72
University hostel, N=257	42	16.3	215	83.7	
Private/home accommodation, N=189	32	16.8	167	83.1	

Table IIc.

The Association between current kola nut use and respondents' characteristics

Variable	Kola nut use		Non-use		χ^2
	N	%	N	%	
Ethnicity					
Bini, N= 114	27	23.7	87	76.3	11.09
Igbo, N= 100	17	17.0	83	83.0	
Esan, N= 86	12	14.0	74	86.0	
Urhobo, N= 50	5	10.0	45	90.0	
Yoruba, N= 38	3	7.9	35	92.1	
Ibo, N= 24	3	12.5	21	87.5	
Isoko, N= 16	2	12.5	14	87.5	
Etsako, N= 10	3	30.0	7	70.0	
Others, N= 44	5	11.4	39	88.6	

riders in Zaria²¹ and not significantly different from the 20.7% reported among secondary school students in Enugu by Igwe and Ojinnaka in 2010²². But Erinfolami et al,⁵ found 11.2 % among secondary school students in Osogbo. Similarly, 23% was reported by Yunusa et al¹⁶ among university students in Sokoto. This may probably be as a result of the Islamic religion which is popular in the Northern Nigeria and which forbade the use of commonly used substance like alcohol. And so people in this part of Nigeria are likely to make use of kola nut which is readily available and not forbidden by Islam. It is worthy of note that a study carried out among commercial motor vehicle drivers by Uwadiae, Otakpor and Akhigbe in the same city as the current study, found a prevalence of 51% for kola nut use²³. The fact that majority of these drivers were above 40 years whereas majority of respondents in the present study

were less than 23 years, may explain this relatively higher prevalence of 51%.

The present study did not find any socio-demographic variable to be a risk factor for kola nut use, whereas Erinfolarin et al⁵ reported kola nut use to be significantly associated with lower age group, poor school attendance, polygamous family background, low education of mother, high education of father and the description of mother as being too permissive while gender, class, religion, religiosity, parental relationship and residence were not. However, the current study considered current stimulant users while the study by Erinfolami et al⁵ looked at past year kola nut use in their comparison of socio-demographic parameters between kola nut users and non-users. Therefore current or active use of kola nut seems to cut across all

divide, further alluding to the ubiquity and acceptability of kola nut use.

This study found a statistically significant association between current kola nut use and general psychiatric morbidity. Similarly, Igwe and Ojinnaka,²² reported association between psychiatric morbidity and psychoactive substance use. Also, Morakinyo²⁴, Fatoye and Morakinyo²⁵, Eeguranti⁸, Ola²⁶, Uchendu²⁷ and Adayonfo and Akhigbe²⁸ reported association between the Brain Fog Syndrome and stimulant use. Furthermore, academic difficulty has also been associated with stimulant use²⁹⁻³².

CONCLUSION

The study found a statistically significant association between general psychiatric morbidity and kola nut use. Students need better study strategies that are devoid of use of kola nut. Kola nut is much more a foe than a friend of students.

REFERENCES

- Burdock GA, Carabin IG, Crincoli CM. Safety assessment of kola nut extract as a food ingredient. *Food and Chemical Toxicology*. 2009; 47(8), 1725-1732.
- Kaplan HL, Sadock BJ. *Synopsis of Psychiatry: Behavioural Sciences/Clinical Psychiatry*, 9th Edition. 2003; 413.
- Barone JJ, Roberst HR. Caffeine consumption. *Food Chem Toxicol*. 1996; 34:119.
- United Nations International Drug Control Programme, Vienna. Technical Series 3. Amphetamine-Type Stimulants: A global review. 1996; 5.
- Erinfolami, A., Eeguranti, A., Ogunsemi, O., Oguntuase, A., Akinbode, A., & Erinfolami, G. Prevalence and associated risk factors of Kola nut chewing among secondary school students in Osogbo, Nigeria. *Mental Illness*. 2011; 3(1), 6.
- Nwachukwu M. [internet]. 2012.[cited 2012 July 02]: [1p]. Available from: www.vanguardngr.com/2012/05/kola-nut-nigerias-see
- Adelekan ML. Self-Reported Drug use among secondary school students in the Nigerian State of Ogun, *Bulletin on Narcotics*. 1989; 41(1) and (2).
- Eeguranti AB. Stimulant use and psychopathology among secondary school students in Osogbo, Osun State, Nigeria. Dissertation submitted to National Postgraduate Medical College of Nigeria, faculty of psychiatry. 2006.
- Igwe WC, Ojinnaka N, Ejiofor SO, Emechebe GO, Ibe BC. Socio-demographic correlates of psychoactive substance abuse among secondary school students in Enugu, Nigeria. *European Journal of Social Sciences*. 2009; 12 (2) 277-83.
- Oshodi OY, Aina FO, Onajole AT. Substance use among secondary school students in an urban setting in Nigeria: prevalence and associated factors. *Afr J Psychiatry*. 2010; 13:52-7.
- Kollins SH, MacDonald E, Rush CR. Assessing the abuse potential of methylphenidate in non human and human subjects: A review. *Pharmacol Biochem Behav*. 2001; 68:611-627.
- Klein-Schwartz W. Abuse and Toxicity of Methylphenidate, *Current Opinion in Pediatrics*. 2002; 14 (2) 219-223.
- Kapner DA. Recreational use of Ritalin on college campuses. Newton, Massachusetts: The Higher Education Center for Alcohol and other Drug Prevention. 2003.
- Bernard ME, Dennehy S, Keefauver LW. Behavioural treatment and excessive coffee and tea drinking: a case study and partial replication. *Behav Therapy*. 1981; 12, 543.
- Yunusa MA, Obembe A, Madawaki A, Asogwa F. A Survey of Psychostimulant Use among a University Students in Northwestern Nigeria. *Nigerian Journal of Psychiatry*. 2011; 9 (3) 40-5.
- Goldberg DP. *The Detection of Psychiatric Illness by Questionnaire*: London: Oxford University Press. 1972; 156.
- Smart RG, Anumonye A, Navaratnam V, Hughes PH, Johnston LD, Varma VK, et al. *A Methodology for Students Drug Use Surveys*. WHO Offset Publication No 50, WHO, Geneva. 1980.

18. Radovanovic Z, Eric LJ. Validity of the General Health Questionnaire in a Yugoslav Student Population. *Psychological Medicine*. 1983; 13, 205-207.
19. Aderibigbe YA, Gureje O. The validity of the 28-item General Health Questionnaire in a Nigerian antenatal clinic. *Soc Psychiatry Psychiatr Epidemiology*. 1992; Nov; 27(6): 280 -283.
20. Statistical Package for Social Sciences, SPSS for windows, version 16.0, SPSS Inc. Chicago, USA. 2007.
21. Alti-Muazu M, Aliyu AA. Prevalence of psychoactive substance use among commercial motorcyclists and its health and social consequences in Zaria, Nigeria. *Annals of African medicine*. 2008; 7(2) 67.
22. Igwe, W. C., & Ojinnaka, N. C. Mental health of adolescents who abuse psychoactive substances in Enugu, Nigeria-A cross-sectional study. *Italian journal of pediatrics*. 2010; 36(1), 1-5.
23. Uwadiae E, Otakepor AN, Akhigbe KO. Prevalence and Pattern of Psychoactive Substance Use amongst commercial motor vehicle drivers in an urban area in the Niger Delta region of Nigeria. *Nigerian Journal of General Practice*. 2010; Nov; 8 (6), 14 -18.
24. Morakinyo O. Psycho-physiological Theory of a Psychiatric Illness (The 'Brain Fog' syndrome) Associated with study among Africans, *Journal of Nervous and Mental Disease*. 1980; 168(2) 84-9.
25. Fatoye FO, Morakinyo O. study difficulty and the 'Brain Fog' Syndrome in South Western Nigeria. *J. Psychol Africa*. 2003; 13, 70 - 80.
26. Ola BA. Study Habits, Sleep Patterns and the "Brain Fog" Syndrome Among Secondary School Students in Ile-Ife. A Dissertation Submitted to the National Postgraduate Medical College of Nigeria, Faculty of Psychiatry. 2007.
27. Uchendu IU. Co-occurrence of Study Difficulty, Psychoactive Use/Abuse and Psychiatric Morbidity ("The Triad") Among Senior Students of University of Abuja. A Thesis Submitted to the National Postgraduate Medical College of Nigeria, Faculty of Psychiatry. 2009.
28. Adayonfo EO, Akhigbe KO. Determinants of Brain Fog Syndrome in Nigeria. An article at the 44th Annual Conference of Association of Psychiatrists in Nigeria, held in Calabar, Nigeria. 2013.
29. Okasha A, Kamel M, Lotaf F, Khali AH, Bishry Z. Academic difficulty among male Egyptian University students II. Association with demographic and psychosocial factors. *Brit. J. Psychiatry*. 1985; 146, 144-150.
30. Morakinyo O. Student Mental health in Africa: Present Status and Future Prospects. 15th annual lecture of the West Africa College of Physician, Accra, Ghana. 1990.
31. Fatoye FO, Morakinyo O. Substance use amongst secondary school students in rural and urban communities in southwestern Nigeria. *East Afr Med J*. 2002; 79(6):299-305.
32. Fatoye FO. Psychosocial correlates of substance use amongst secondary school students in south-western Nigeria. *East Afr. Med J*. 2003; 80, 154-8.