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KNOWLEDGE, ATTITUDE AND PRACTICE OF HEALTHY LIFESTYLE AMONG UNDERGRADUATE STUDENTS OF THE UNIVERSITY OF IBADAN, NIGERIA

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Abstract
Unhealthy lifestyle such as inappropriate diet, lack of exercise, smoking, alcohol consumption, caffeine overuse and improper sleeping habits seen among university students has been associated with the global burden of non-communicable diseases. This study aimed at describing the knowledge, attitude and practice of healthy lifestyle among undergraduates in the University of Ibadan, Nigeria.

This descriptive cross-sectional study involved 407 undergraduate students selected from ten undergraduate halls using a simple random sampling technique. A pre-tested, self-administered questionnaire was used to obtain information on socio-demography, knowledge, attitude and practice of healthy lifestyle based on literature. The dietary practice was assessed with a Food Frequency Questionnaire Physical activity was assessed with the short-form of International physical activity Questionnaire (IPAQ) tool. Anthropometric measurements were taken using standard procedures. Data were analyzed using descriptive and inferential statistic at p=0.05.

Age of the respondents was 21.8±3.24years and 58% were females. Almost all the respondents (97.8%) had a good knowledge of healthy lifestyle, 38.3% had negative attitude towards healthy lifestyle. About 40% skipped lunch while 7.1% consumed fruits and vegetables daily, as regards the activity level of the respondents, 69%, 12.5%, 10.3% had a moderate, high, and low physical activity levels respectively while 62.4% of the respondents sleep between four and seven hours/day.Majority (71.5%) of the respondents had normal weight while 15.2% were underweight.
Even though, majority of the respondents had good knowledge of healthy lifestyle principles, the actual practice was still very low thus highlighting the need for enabling environment to promote adequate practice of healthy lifestyle.
Keywords: Dietary intake, Physical activity, Sleep pattern, Young Adults

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INTRODUCTION

Lifestyle refers to the way of life that reflects the values and attitude of a person or group, which result from need, opportunity and convenience (Olaitan *et al.*, 2013). Sixty percent of the quality of an individual's health and life depends on his or her lifestyle (WHO, 2003). Healthy lifestyle is a way of living that

incorporates adequate dietary intake, appropriate physical activity level, appropriate sleep, moderate alcohol use, no tobacco use and lowers the risk of developing non-communicable diseases (WHO, 2013).

Previous studies have shown that University students tend to practice unhealthy eating habits such as skipping meals, increased consumption of energy-dense foods and low consumption of fruits and vegetables, as well as have reduced physical activity level (Abolfotouh *et al.*, 2007; Arulogun and Owolabi, 2011, Maruf *et al.*, 2012; Aung *et al.*, 2012). Also, college students have been found to be a population that does not get as much sleep as a typical adult population (Bawo*et al.*, 2011). Many factors have contributed to the increased rate of unhealthy eating habits among university students, including the increase in shopping malls, convenience stores, vending machines and fast food outlets (King *et al.*, 2007).

Unhealthy lifestyle practices such as poor eating practices, physical inactivity, exposure to tobacco smoke and harmful alcohol use have been attributed to be one of the major risk factors in the development of Non-communicable diseases (NCD) such as cancers, diabetes, cardiovascular diseases and chronic respiratory diseases (WHO, 2013). Non communicable diseases have previously been thought to be associated with developed countries but recent studies have revealed that non communicable diseases kill more than 36 million people yearly with 80% occurring in low and middle income countries (WHO and Ministry of Public Health and Social Development of Russian Federation, 2011). The economic cost of NCDs in Nigeria in 2005 was about 400 million dollars from premature death due to NCDs, it is projected that this value may rise to about 8 billion dollars in 2015 (HERFON, 2011).Another study also estimated that about 5million Nigerians may die of Non- communicable disease by 2015 (Ekpenyong *et al.*, 2012). A cheap way of reducing the risk of developing non communicable diseases is by adopting a healthy lifestyle (Lim *et al.*, 2012).

Knowledge is a very important factor in lifestyle modification. It is expected that individuals are better equipped to practice what they are well informed and knowledgeable about. Encouraging informed decision concerning health issues is the paradigm shift in preventing and controlling non-communicable diseases. Universities and colleges are potentially important targets for the promotion of healthy lifestyle. College students are at a time and place in their lives where their behavior is conducive to change. In fact, the students' social role of learner is largely defined by a readiness to change (NIH, 1998).Therefore, college campuses serve as crucial settings to overcome perceived barriers to healthy diet and exercise habits, and implement effective interventions (Wallace *et al.*, 2000).

The knowledge and practice of healthy lifestyle principles by undergraduate students in the University of Ibadan is poorly researched, thus this study was conducted to assess the knowledge, attitude and practice of healthy lifestyle among undergraduate students of the University of Ibadan.

MATERIALS AND METHODS

This descriptive cross-sectional study was carried out in the University of Ibadan, Ibadan,

Oyo state, Nigeria in the Ibadan North local Government Area of Oyo state.

The University of Ibadan is the first University institution in Nigeria and was established in 1948. The University has ten halls of residence for undergraduate students and two for postgraduate students.

The minimum sample size selected for the study was calculated using the Fischer's statistical formula:

$$Ns = \frac{Z^2 Pq}{d^2}$$

Ns = minimum sample size; Z = constant = 1.96

P = Prevalence of poor Nutritional status amongst university undergraduates = 0.5 (50%) q = 1 – P; d = level of precision = 5% = 0.05

$$Ns = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = 384.14$$

The minimum sample size for the study was approximately 384 but a total of 407 male and female undergraduate students of the University consented and participated in the study. Participants were randomly recruited from ten undergraduate hall of the University. A self-administered, pretested questionnaire was used to collect the data. The questionnaire consisted of five sections: socio-demographic data, knowledge on healthy lifestyle, attitude to healthy lifestyle, physical activity level, lifestyle practice and anthropometric measurements. Knowledge of healthy lifestyle was assessed using a 21 points scale categorized as poor (0-7.0), fair (7.1-15.0) and good (≥15.1). Attitude to healthy lifestyle was assessed using a 5-item points scale categorized as negative (0-7.5) and positive attitude ((7.6-15). The seven items in the short form of the international physical activity questionnaire (IPAQ) were used to retrieve information on the physical activity of the respondents in the last seven days. This was recorded as continuous and categorical scores of the IPAQ, the physical activity level of the respondent was categorized into low, moderately and highly active based on the criteria stated in the short form of the IPAQ.

A calibrated bathroom scale was used to measure weight to the nearest 0.1kg. Height was measured with a stadiometer in meters to the nearest 0.1m using standard techniques. Quality control was ensuring the bathroom scale is at zero before each weighing, and once a week it was re-calibrated with a known weight. Body mass index (BMI) was calculated from weight (kg)/height $(m)^2$ (WHO, 2006).

Data entry and analysis were done using statistical package for the social sciences (SPSS) version 17.0. Descriptive statistics (percentages, means, and standard deviation) and inferential statistics (chi square and regression analysis) were done to determine relationship between variables.

The study was approved by the joint University of Ibadan/University College Hospital Ethical Review Committee.

RESULT

A total of 407 students participated in the study; 58.0% were females. The mean age of the study was 21.8 ± 3.24 years. The mean age among the males was 22.5±3.34. Majority of

the respondents (60.9%) were between the ages of 21 and 25 years, 97.3% were single, 88.9% were Christians and 92.1% resided in the university's hostels (Table I).

The mean monthly income of the respondent was 12900.3 ± 6612 naira. About 29.0% of the respondents got monthly allowance ranging from ₦5000 to ₦10, 000 while 23.6% got monthly allowance ranging from ₦10,001 to ₦15,000. Also, 37.8% of the respondents spent more than ₦5,000 monthly on food monthly (Table II).

Figure 1 shows the knowledge score of the respondents on healthy lifestyle. The mean knowledge score was 19.22 ± 2.50. About 98.5% agreed that fruits and vegetables are rich sources of vitamins and minerals while 97.5% agreed that they should be part of daily food intake. About 0.2% of the respondents had poor knowledge, 2.0% had fair knowledge while 97.8% had good knowledge of healthy lifestyle.

Females were found to have good knowledge score (57.3%) than males (40.5%), while more males (1.5%) than females (0.5%) had average knowledge score.

As regards attitude toward healthy lifestyle practices, the mean attitude score was 8.64 ± 3.58. Majority (60.4%) agreed that it is expensive to eat healthy. About 80.0% did not agree that drinking alcohol to relieve pain/stress is bad, while another 74.2% indicated that sleeping for at least eight hours daily is necessary for healthy living. About 61.7% had a positive attitude towards healthy lifestyle while 38.3% had a negative attitude; more females were found to have a positive attitude (38.1%) than males (23.6%) (figure 2)

Table I: Gender, Age, Marital status and Faculty of Respondents (n=407)

Characteristics	Number (N)	Percentage (%)
Gender		
Male	171	42.0
Female	236	58.0
Age (years)		
15-20	123	30.2
21-25	248	60.9
26-30	21	5.2
>30	12	2.9
No response	3	0.7
Marital status		
Single	396	97.3
Married	11	2.7
Religion		
Christianity	362	88.9
Islam	44	10.8
No response	1	0.3
Faculty		
College of medicine	123	30.2
Science	64	15.7
Technology	18	4.4
Agriculture	42	10.3
Veterinary medicine	6	1.5
Pharmacy	6	1.5
Social sciences	37	9.1
Education	41	10.1
Law	15	3.7
No response	2	0.5
Monthly allowance (₦)		
<5,000	48	11.8
5,000 - 10,000	116	28.5
10,001 -15,000	96	23.6
15,001 – 20,000	62	15.2
20,001 - 25,000	45	11.1
25,001- 30,000	13	3.2
>30,000	8	2.0
No response	19	4.7
Amount spent on food monthly(₦)		
<1000	8	2.0

1,000 - 2,000	32	7.9
2,001 - 3,000	51	12.5
3,001 - 4,000	57	14.0
4,001 - 5,000	91	22.4
>5,000	154	37.8
No response	14	3.4

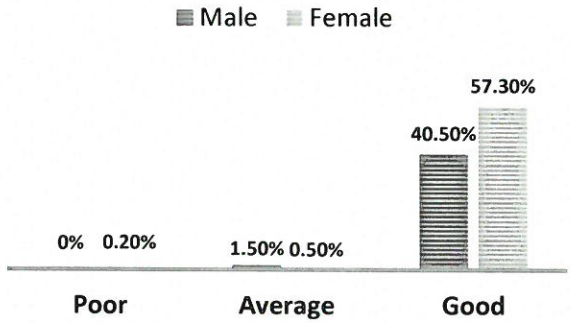

Figure 1: Knowledge score of respondents

Table II: Monthly Income and amount spent on food monthly (N=407)

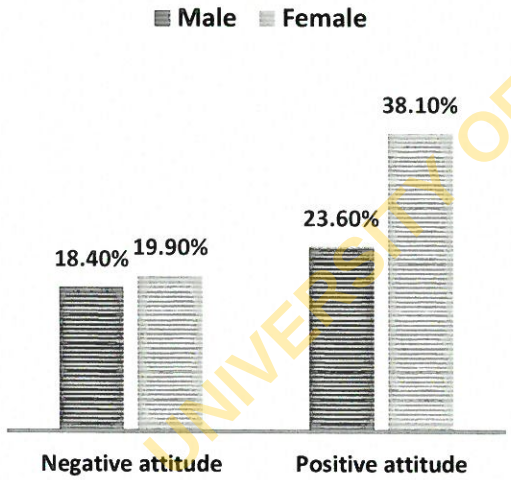

Figure 2: Attitude Score of respondents

More than half of the respondents (69.0%) were moderately active while 10.3% had low physical activity level. Although more female (6.6%) than males (5.9%) were found to be highly active, the larger proportion of those found in the low active category were also females (7.6%) (Figure 3).

Majority (71.5%) of the respondents had normal weight, 15.2% were underweight while 12.1% were either overweight or obese, and more females (2.5%) than males (0.5%) were obese (Figure 4). There was a significant positive relationship between the BMI and Physical activity level of the respondent (p= 0.038).

About half of the respondents (50.9%) skipped meals, with 39.3% skipping lunch and 38.6% skipping breakfast. Of those skipping meals, 28.7% attributed this to lack of time, while 5.9% attributed it to weight control. About 50.9% never added salt to food at table. Also, 29.7% preferred fried foods to other forms of food and only 31.4% always read food labels before buying food products (Table IV). Results from the study also show that 62.4% of the respondents sleep between four and seven hours per day while 92.6% never smoke (Table III).

Table III: Information on smoking practices and sleeping pattern (n=407)

Variables	Frequency (n)	Percentage (%)
Smoking		
Daily	5	1.2
4-6 wks/wk	8	2.0
<3xs/wk	3	0.7
Occasionally	5	1.2
Never	377	92.6
No response	9	2.2
Average sleeping hours per day		
<4 hrs	27	6.6
4- 7hrs	254	62.4
8-10 hrs	118	29.0
>10 hrs	4	1.0
No response	4	1.0

Respondents that consumed fruits and vegetables daily were 7.1% each. About 57.7% consumed cereals (polished rice, noodles, and spaghetti) daily while only 14.0% took roots and tuber daily, and another 12.3% daily consumed legumes and nuts. Less than half of the respondents (49.1%) took meat, fish, egg and their products daily. About 24.8% and 23.8%, respectively consumed snacks and soft drinks about four to six times per week while 74.4% never took alcoholic drinks.More females (41.3%) than males (36.9%) skipped breakfast while more males (44.0%) than females (37.4%) skipped lunch ($p< 0.05$).

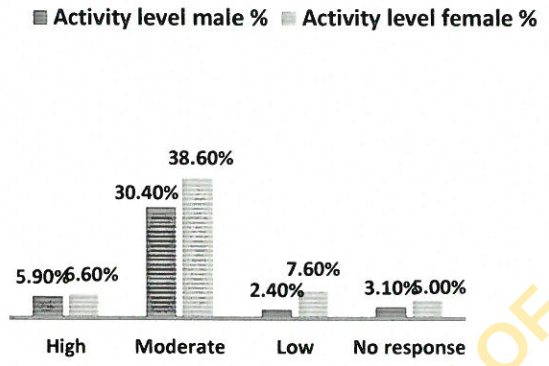

Figure 3: Physical Activity Level of Respondents

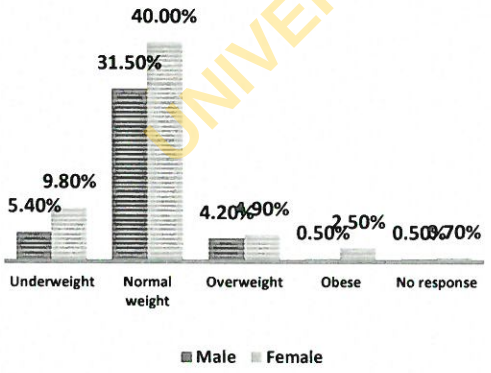

Figure 4: Nutritional status of respondents

Results from the study further revealed an association between the knowledge score of the respondents and their alcohol consumption rate ($P<0.001$).

Results further showed some factors that influenced the physical activity level and Fruit consumption rate of the respondents. The age group of respondents significantly influenced the physical activity level of respondents. The gender and level of study of the respondents was found to influence the chances of respondents having a low physical activity level, while the consumption of fruits among the respondents was influenced by the estimated monthly income of the respondents and the gender of the respondents (Tables V – VI).

Table IV: Eating practices of respondents (N=407)

Variables	Frequency (n)	Percentage (%)
Do you skip meals		
Yes	207	50.9
No	191	46.9
No response	9	2.2
Meal often skipped/day		
Breakfast	157	38.6
Lunch	160	39.3
Dinner	29	7.1
None	52	12.8
No Response	9	2.2
Reasons for skipping meals		
No Time	117	28.7
Not In The Habit	76	18.7
Financial Constraint	41	10.1
Weight Control	24	5.9
All of the above	39	9.6
Other reasons	19	4.7
No Response	91	22.4

Do you add salt to food at table		
Always	88	21.6
Occasionally	104	25.6
Never	207	50.9
No Response	8	2.0
Prefer fried foods		
Yes	121	29.7
No	214	52.6
No Response	72	17.7
Read food labels before buying food products		
Always	128	31.4
Occasionally	243	59.7
Never	31	7.6
No response	5	1.2

Table V: Regression analysis, Dependent Variable: Low Physical Activity

Variable	Beta Coefficient	Standard error	P-value
Female	1.10	.45	0.01
200L	1.44	.77	0.06
400L	1.41	.74	0.06

*Significant at p<0.05

Table VI: Regression Analysis, Dependent Variable: No Physical Activity

Variable	Beta Coefficient	Standard error	P-value
15- 20	-3.45	1.48	0.02
21 – 25	-3.69	1.44	0.01
26 – 30	-4.20	1.80	0.02

**Significant at p<0.05

Table VII: Dependent Variable: Fruits Consumption (Frequently vs Not Frequently)

Variable	Beta Coefficient	Standard error	P-value
Female	-.56	.25	0.03
200l	-1.09	.48	0.02
600L	-2.07	.92	0.02
20,001-25,000	1.12	.51	0.03

*Significant at p<0.05

DISCUSSION

The study revealed that most of the respondents have good knowledge of healthy lifestyle but this did not reflect in their practice especially dietary practices. This is in agreement with findings from previous studies (Dube and Kirti, 2012; Nurliyana *et al.*, 2011; Emma, 2011; Rubina *et al.*, 2009). Emma (2011) stated that majority of the young adults did not lack basic knowledge on healthy lifestyles; most understood what was required of them to be healthier in terms of food, alcohol and physical activity. However, they misunderstood, or lacked the knowledge to implement their understanding of what constitutes a healthy lifestyle and/or the confidence to implement the information. Results from this study agree with this finding, as the knowledge of the undergraduate student did not fully translate to practice.

Majority of the respondents (61.7%) in the study had a positive attitude towards healthy lifestyle which was similar to previous studies that found majority of its respondents to have positive healthy eating behavior Hearty *et al.*(2006) and physical activity level (Economic and Social Development, 2011). In contrast to Hearty et al. (2006), the attitude of the respondents did not translate to healthy eating practices but the positive attitude of majority of the respondents did influence their physical activity level.

In this study, the proportion of respondents with low physical activity level; was smaller than reported by Maruf e*t al. (*2012) in a study among university undergraduates in Nigeria. The study further revealed that more females were in the low active category, which is similar to previous findings (Abolfouh *et al.,* 2007, Odunaiya *et al.,* 2010, Maruf *et al.,* 2012).Results also revealed that the age of the respondents influenced their physical activity level; this is in agreement with the findings of CDC (1995) and Health Education Authority (1997).

Results from the study revealed that majority of the respondents had normal weight; this is similar with findings of Maruf *et al.*(2012).The prevalence of underweight in the study was more than that of overweight and obesity which is consistent with findings of Abdullhakim *et al.* (2012).

An association was found between the body mass index of the respondents and their physical activity level. A very small proportion of the respondents were overweight or obese, this could be due to the large percentage of the respondents that had high and moderate physical activity level.

Almost all the respondents agreed that fruits and vegetable should be part of their daily intake but only a small proportion eat fruits and vegetables daily, this agrees with the finding of Adu *et al.* (2009). The results further revealed an association between monthly income of the respondents and fruits consumption. Adeoye and Adeoye (2009) also reported that fruit consumption increased with family's material wealth and higher parental occupational status, thus financial status could be seen as one of the factors that contribute to the low rate of fruits and vegetable intake. Cereals and cereal products which consist majorly of polished rice, spaghetti, noodles, cornflakes among others were the type of food mostly consumed daily, while close to half of the respondents consumed meat, fish, eggs and their products daily. In contrast to findings of Ganasegeran *et al.* (2012) of low consumption of fast food among medical students, this study show majority of the respondents ate snacks either daily, weekly or occasionally while nearly all consumed carbonated soft drinks, this high consumption of fast food is in agreement with the findings of Arulogun and Owolabi (2011).

The proportion of respondents who ate less than three times a day, skipped meals is similar to that reported previously (Osako *et al.,* 2005; Moy *et al.,* 2009), but differ to the results from a study in Kentucky which stated that breakfast is the most frequently skipped meal (Courtney, 2010), while this study show that lunch was the most frequently skipped meal. The prevalence of breakfast skipping was higher than the Malaysian study (Moy *et al.,* 2009). The results further revealed that more males than females skip lunch while more females than males skip breakfast.

Some of the reasons for skipping meals reported from the study were lack of time, financial constraint, not in the habit of eating and weight loss which were similar to the reasons stated by Afolabi *et al. (*2013) in their study.

The prevalence of alcohol use in this study was higher than reported by Rintaugu (2012) in a study amongst university students in Ilorin, Nigeria. In contrast to the low rates of alcohol use reported in the study above, a study carried out in Nigeria amongst undergraduate students

revealed that majority of the students consumed alcohol, some of the reasons for alcohol use reported were: for relaxation, due to peer influence amongst other reasons (Ebirim and Morakinyo, 2011).The results from the study further revealed that more males than females consumed alcohol; this is similar to the findings of Obikeze and Obi (2013).

A small percentage of the respondents reported that they smoke; this low rate is similar to the smoking prevalence rate reported by Aina (2009). In Contrast, a Malaysian study reported prevalence of smoking among university students as high (Redhwan *et al.*, 2013); and similar report among adolescents in North east Nigeria (Adeyeye, 2011). Earlier studies have identified factors influencing smoking to include advertisement, relative influence of parents, siblings or friends and stress of studying in the university (Adeyeye, 2011; Redhwan *et al.*, 2013). However, there is dearth of information on whether the currently observed low smoking rate was due to religious abstinence or a health- informed choice.

Current study shows that more than half of the respondents sleep averagely for less than eight hours a day, reported irregular sleeping time at night and wake up time in the morning. Similar to a study among medical students where poor sleep quality as well as irregular bed time schedule were reported (Bawo *et al.*, 2011).; this expected finding was attributed to the strenuous schedules in their medical program.

CONCLUSION

In this study, a good percentage of undergraduate students had a good basic knowledge about healthy lifestyle but not all of them have a good attitude towards it while their practice of healthy lifestyle is low. Thus, nutrition intervention specific for dietary intake is recommended to help enlighten the undergraduate students on the risk factors of their eating pattern (high consumption of fast food, low consumption of fruits and vegetables) on their health, now and in future. Time and finance should be considered when planning the nutrition interventions because lack of time and low financial state were the common factors stated to influence their dietary habits. Education on the effects of sleeping pattern on health is also recommended as majority of the respondents were found to sleep less than eight hours per day.

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