JOURNAL OF BEHAVIORAL HEALTH, 2019
VOL 0, NO. 0
10.5455/jbh.XXXXXX

ORIGINAL RESEARCH

Open Access

Health behaviors, self-efficacy and quality of life of clinical and non-clinical students of a University in Nigeria

Adesola Odole[1], Nse Odunaiya[1], Sandra Charles[1], Joshua Olumayowa Ojo[2]

[1]University of Ibadan, Ibadan, Nigeria

[2]University of Benin Teaching Hospital, Benin, Nigeria

ABSTRACT

Background and Purpose: Chronic illnesses and non-communicable diseases are consequences of risky health behaviors established during childhood and adolescence and carried out into adulthood. These health behaviors which include alcohol use, poor dietary habits, smoking and use of psychoactive substances impact on the quality of life negatively. This study was, therefore, designed to investigate the health behaviors, self-efficacy, and quality of life of University students.

Methodology: A cross-sectional survey which involved 320 (140 males and 183 females) conveniently sampled participants. Data were collected on health behaviors using the International Physical Activity Questionnaire, Alcohol Use Identification Test 10, Nigeria Composite and Lifestyle CVD Risk Factors Questionnaire, General self-efficacy scale, the World Health Organization Quality of Life BREF, and the Drug Use questionnaire DAST-10. Data were analyzed using descriptive statistics of means, percentages, frequencies, pie charts, independent *t*-test, and Chi square with α set at = 0.05.

Results: The study revealed that 31.2% of the participants reported low physical activity level. Psychoactive substance use was reported in 16.4% of both populations, while 9% of the entire population smoked. Most participants (53.5%) reported high consumption of carbohydrate rich foods, while there was low consumption of vegetables and fruits among the students. The study revealed that clinical students had higher average scores for self-efficacy and quality of life than non-clinical students. There was a significant difference in the physical activity level (p = 0.04), alcohol use (p = 0.001), psychoactive substance use (p = 0.003), self-efficacy (p = 0.007), and quality of life (p = 0.001) between clinical and non-clinical students.

Conclusion and Recommendation: Clinical students had better self-efficacy and quality of life than non-clinical students. Both student populations engaged in risky behaviors (smoking, alcohol, and psychoactive substance use) and most had poor dietary habits. Provision of enlightenment programs on the consequences of health risk behaviors to clinical and non-clinical students. Similar studies should be carried out in other geopolitical zones and on other health behaviors.

ARTICLE HISTORY

Received May 25, 2019
Accepted November 11, 2019
Published XX

KEYWORDS

Health behaviors; self-efficacy and quality of life

Introduction

The life of university students can be exciting as well as stressful; it involves being faced with trying to adapt to academic activities, support networks, and the school environment [1]. University students are in an interesting stage of life where they can determine and establish their health behaviors as they experience more freedom in making personal decisions than earlier or later in life and can try out different lifestyle choices [2]. Thus, years spent in the university can be seen as a transition period, and is hence a perfect time to establish healthy lifestyle behaviors [1].

Health behavior is defined as those personal attributes, such as beliefs, expectations, motives, values, perceptions, and other cognitive elements;

Contact Joshua Olumayowa Ojo ✉ may4josh@gmail.com University of Benin Teaching Hospital, Benin, Nigeria.

personality characteristics, including affective and emotional states and traits; and overt behavior patterns, actions, and habits that relate to health maintenance, restoration, and improvement [3]. Simply put, it is any behavior carried out by a person which has an impact on his or her health condition, which could be both positive and negative [4]. These behaviors are divided into favorable and unfavorable behaviors [5] which can strengthen (health-oriented) or weaken (health-threatening) an individual's health potential. Health-oriented behaviors include inter alia: appropriate dietary habits, sufficient level of physical activity, and the ability to cope with stress. Health-threatening behaviors involve using psychoactive substances (such as smoking, alcohol, and drug abuse), excessive use of non-prescription medications [6], and risky sexual behaviors (e.g., having multiple partners and unprotected sex [7].

An important concept in health behavior is self-efficacy. Self-efficacy has been increasingly associated with health behavior and its change [8]. Self-efficacy is described as an individual's beliefs in his or her capabilities to organize and execute courses of action required to produce given achievements. The theory of self-efficacy suggests that a person's behavior is better predicted by his or her beliefs in the capabilities to do whatever is needed to succeed than by the behaviors importance [9]. Self-efficacy is said to be the strongest predictor of health promoting behavior; therefore, there is proof that low self-efficacy will contribute to defective or health-threatening behaviors [10] and consequently low quality of life.

The World Health Organization (WHO) defines the quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns [11]. The worth an individual places on health is a significant motivator for health behaviors [12] which facilitate the continuance of suitable health conditions. Health behaviors have been confirmed by science to affect the health condition of the general population as well as individuals with disease conditions [13]. These include university students, which are majorly youths, defined to be persons within the age of 18–35 years and constitute about 37.3% of the Nigerian population [14].

It is believed that university students are more likely to have healthier lifestyles and better quality of life, especially clinical science students. This assumption is based on the premise that clinical students are well informed of the consequences or impact of lifestyle on health though there is no empirical data to support this belief. There is a dearth of information on the health behaviors, self-efficacy, and quality of life of Nigerian University students. Therefore, the purpose of this study was to investigate into the selected health behaviors, self-efficacy, and quality of life of students of the University of Ibadan, Ibadan, Nigeria.

Material and Methods

Ethical approval for the study was sought and obtained from the University of Ibadan/University College Hospital Health Research Ethics Committee before the commencement of the study. Respondents for this study were students of the University of Ibadan from clinical sciences (Physiotherapy, Medicine and Surgery, Dentistry and Nursing from second to final year) and non-clinical students in the Faculty of Law from second to fifth years, and the Departments of Theatre Arts and European studies from first to fourth years. The respondents were recruited using a convenience sample technique after the Departments and Faculties for this study were selected using the fish bowl sampling method. An informed consent form was given to the respondents before the commencement of the study. Students with physical disabilities and medical conditions that could affects their lifestyles and prevent them from being able to engage in physical activity were excluded in this study. Data were collected using an existing and content-validated questionnaires. The International Physical Activity Questionnaire (IPAQ), The Alcohol Use Identification Test (AUDIT C), Nigeria Composite Lifestyle CVD Risk Factors Questionnaire, General self-efficacy scale, and [The World health organization quality of life BREF (WHOQOL)]

Instruments

The International Physical Activity Questionnaire (IPAQ)

The IPAQ (IPAQ, 2005) was developed to measure health-related physical activity in populations. It has two forms: the short and the long Form. The short form (SF) questionnaire was used for assessing physical activities in the participants as it has been recommended as a cost-effective method [15]. It assesses physical activity in four domains: transport-related physical activity, during household and

gardening tasks, work-related physical activity, and physical activities during leisure time. The IPAQSF recorded activities at three levels: vigorous intensity activities, moderate intensity activities, and walking. Questionnaires were used in a "last 7 days" recall version [16] because the burden on participants to report their activity is small. The instrument was shown to have a 12-country reliability and validity test [17].

IPAQ scoring protocol

Metabolic Equivalents (METS) values are used for the analysis of the IPAQ data. MET is the ratio of the metabolic rate during the activity as compared to the metabolic rate during rest. Each activity is assigned an intensity code expressed in terms of METS. The weighted MET minute per week for each activity was calculated as follows:

1. Walking MET (minutes /week) = 3.3 × walking minutes × walking days.
2. Moderate MET (minutes /week) = 4.0 × moderate intensity activity minutes × moderate activity days.
3. Vigorous MET (minutes/week) = 8.0 × vigorous intensity activity minutes × vigorous activity days.

Total physical activity MET (minutes/week) = sum of walking + moderate + vigorous MET (minutes/week) scores.

The Alcohol Use Identification Test (AUDIT C)

The Alcohol Use Identification Test (AUDIT) is a three-item alcohol screen questionnaire that helps identify individuals with alcohol misuse disorders. The AUDIT has shown to have an internal consistency of 0.81, a study done in Nigeria among university students showed that the AUDIT was a valid screening tool with a validity of 0.93 [18], a sensitivity of 0.67 and it also showed test re-test reliability. It has also shown cross-cultural adaptation as it has versions in different countries, such as Nigeria, Germany, Belgium, India, Spain, Brazil, and Switzerland [18–23].

Scoring of the AUDIT

The scoring of AUDIT is based on a scale of 0–40. Each question has five answer choices. Points are allotted thus, a = 0 point, b = 1 point, c = 2 points, d = 3 points, and e = 4 points. With the interpretation of scores, thus 0 indicates non-drinker, a score of 1–2 indicates non-hazardous drinker, while a score of 3 and above for females or 4 and above for males indicate hazardous drinking.

Nigeria composite lifestyle CVD risk factors questionnaire

Current smoking status and questions on dietary habits will be adapted from the tobacco use and nutrition components of this questionnaire [28]. It is a valid and fairly reliable questionnaire. The dietary section of the instrument grouped food items into low, moderate, and high consumption depending on the number of times a week the particular food was consumed. Consumption days of 0–2 signified low consumption, 3–5 days moderate consumption, while 6–7 days signified high consumption of the food item.

General self-efficacy scale

It was designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life. It is a 10-item scale which participants respond by indicating their extent of agreement with each of the 10 statements based on a four-point Likert scale of "1—not at all true" to "4—exactly true" [29]. It has been shown to have a high reliability, construct validity, and adopted across 28 nations [30,31].

The World health organization quality of life BREF (WHOQOL)

The respondents' perception of their quality of life was assessed through the questionnaire, with a scoring scale of 1–5, with each indicating "1—not at all," "2—a little," "3—moderately," "4—mostly," and "5—completely." The perception of their quality of life is in four domains: physical, psychological, social relations, and environmental. It shows good to excellent psychometric properties of reliability, validity, and utility. It has been translated to several languages. The different domains are concerned with different facets of life Physical domain: activities of daily living, dependence on medicinal substance and medical aids, energy and fatigue, mobility, Pain and discomfort, sleep and rest, and work capacity. Psychological domain: bodily image and appearance, negative feelings, positive feelings, self-esteem, spirituality/religion/personal beliefs, thinking/learning/memory, and concentration. Social relationships domain: personal relationships, social support, and sexual activity. Environmental domain: financial resources, freedom/physical safety/security, health and social care (accessibility and quality), home environment, opportunities for

acquiring new information and skills, participation in and opportunities for recreation and leisure-activities, physical environment (pollution, noise, traffic, and climate), and transport. Data were analyzed using Independent *t*-test to determine the general quality of life between clinical and non-clinical students.

Results

A total of 359 copies of the questionnaires were distributed to the participants in the University of Ibadan main campus and the University College Hospital, Ibadan. However, 354 questionnaires were returned (response rate of 98.61%). Three hundred and twenty-three (89.97%) were deemed fit for analysis. Respondents (140 males and 183 females) aged 21.45 ± 4.01 years were involved in the study. One hundred and forty-eight (51.4% males and 48.7% females) of the respondents were clinical students, while 175 (36.57% males and 63.45% females) were non-clinical students (Table 1).

Participants physical activity level

In the entire respondent population, one hundred (30.96%) reported low physical activity levels, while 175 (54.17%) and 48 (14.86%) reported moderate and high physical activity levels respectively (Fig. 1). Among clinical students, 44 (29.3%) were classified as having low physical activity level, while 89 (60.14%) and 15 (10.14%) respondents reported moderate and high physical activity levels, respectively. Fifty-six (32.06%) of non-clinical students reported low physical activity level, while 86 (49.1%) and 33 (18.9%) were classified as having moderate and high physical activity levels (Table 2).

Table 1. Socio-demographic characteristics of participants.

Variable	Clinical *n* (%)	Non-clinical *n* (%)	Total *n* (%)
Age (years)			
16–20	22 (14.9%)	91 (52.2%)	113 (34.98%)
21–25	121 (81.8%)	77 (44.0%)	198 (61.30%)
26–30	5 (3.4%)	6 (3.4%)	11 (3.41%)
31–35	0 (0%)	1 (0.6%)	1 (0.31%)
Sex			
Female	72 (48.7%)	111 (63.43%)	183 (56.66%)
Male	76 (51.4%)	64 (36.57%)	140 (43.34%)
Level of study			
100	0 (0%)	8 (4.57%)	8 (2.77%)
200	6 (4.1%)	54 (30.86%)	60 (18.58%)
300	8 (5.4%)	43 (24.57%)	51 (15.79%)
400	51 (34.5%)	39 (22.29%)	90 (27.86%)
500	41 (27.7%)	31 (17.71%)	72 (22.29%)
600	42 (28.4%)	0 (0%)	42 (13.00%)

Alcohol use in clinical and non-clinical students

A large proportion of respondents were non-drinkers (242, 74.9%) while a small proportion were hazardous drinkers (9, 2.8%) (Fig. 2). Ninety-seven clinical students (65.5%) were non- drinkers, 47 (1.8%) and 4 (2.7%) were classified as hazardous and non-hazardous drinkers, respectively. While 145(82.9%) of non-clinical students were non-drinkers, 25(14.3%) drank but not within hazardous levels, while 9 (2.8%) participants were hazardous drinkers (Table 3).

Psychoactive substance use of clinical and non-clinical students

In the general population of participants, two hundred and seventy (83.6%) were non-users, forty (12.4%) use psychoactive substances at a low level, while 9 (2.8%) and 4 (1.2%) use at moderate and substantial levels, respectively (Fig. 3). Only 9 (6.1%) clinical students were low level users, while 4(2.7%) used psychoactive substances at a moderate level. Four (2.3%) non-clinical students used psychoactive substances at a substantial level, while 31 (17.7%) used at a low level (Table 4).

Smoking habits of participants

Majority (294, 91.0%) of the respondents do not smoke (Fig. 4). Fourteen (9.5%) clinical students reported as smokers, while fifteen (8.6%) non-clinical students were smokers. A large proportion (144, 44.8%) of respondents reported to start smoking at 18 years of age (Table 5).

Dietary habits of clinical students

Majority (62, 41.9%) of the respondents reported high and moderate meat consumption. A large proportion (107, 72.3%) of respondents reported low consumption of breakfast cereals, while 63 (42.6%) respondents reported moderate consumption of vegetables. A very large proportion (107, 73.3%) of respondents reported low consumption of fruits. Most respondents (83, 56.1%) reported high consumption of carbohydrate rich foods, more participants consumed protein-rich foods (71, 48.0%) and salt (90, 60.9%) moderately and majority (95. 64.2%) of the clinical respondents preferred their foods boiled (Table 6).

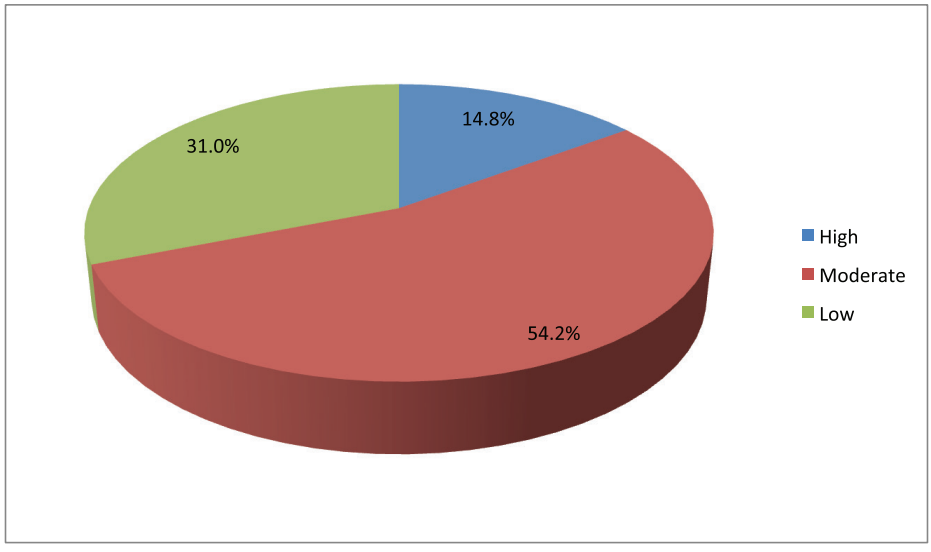

Figure 1. Physical activity levels in clinical and non-clinical students.

Table 2. Physical activity level of the respondents.

PA levels	Clinical *n* (%)	Non-clinical *n* (%)	X^2	*p*
Low	44 (29.73%)	56 (32.0%)	6.027	0.0409
Moderate	89 (60.14%)	86 (49.1%)		
High	15 (10.13%)	33 (18.9%)		

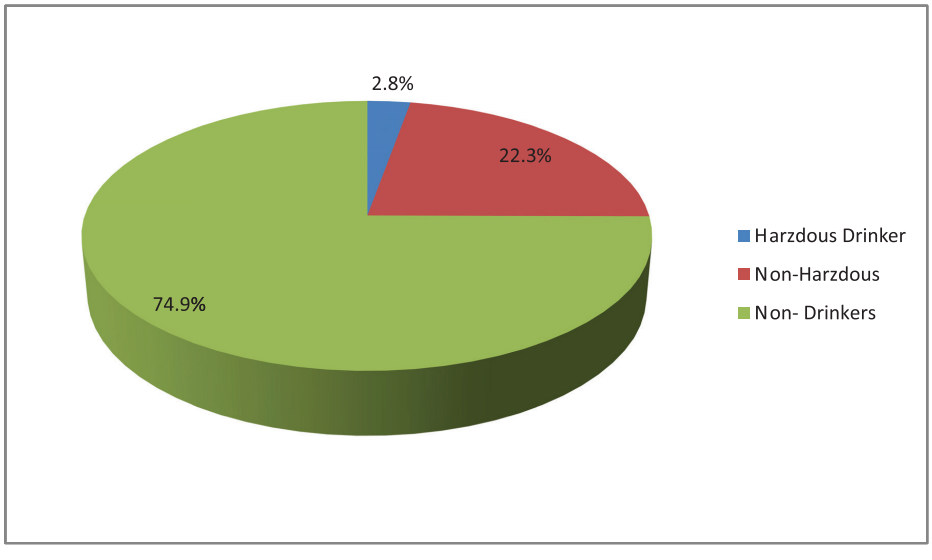

Figure 2. Alcohol use among clinical and non-clinical students.

Table 3. Alcohol use in clinical and non-clinical students.

Variable	Clinical *n* (%)	Non-clinical *n* (%)	X^2	*p*
Non-drinkers	97 (65.5%)	145 (82.9%)	14.196	0.001
Non-hazardous	47 (31.8%)	25 (14.3%)		
Hazardous	4 (2.7%)	5 (2.8%)		

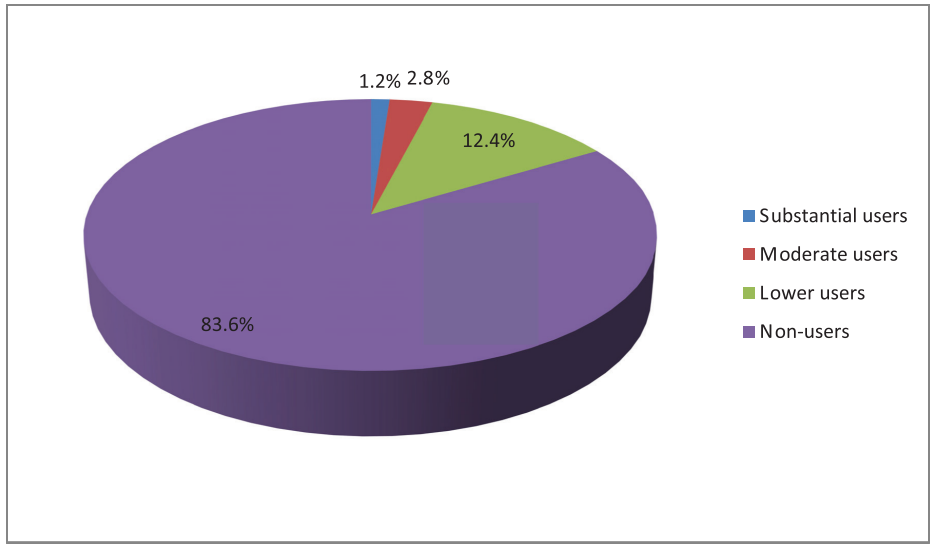

Figure 3. Psychoactive substance use among clinical and non-clinical students.

Table 4. Levels of psychoactive substance use in clinical and non-clinical students.

Level	Clinical *n* (%)	Non-clinical *n* (%)	X^2	*p*
Non-users	135 (91.2%)	135 (77.1%)	14. 052	0.003
Low	9 (6.1%)	31 (17.7%)		
Moderate level	4 (2.7%)	5 (2.9%)		
Substantial	0 (0%)	4 (2.3%)		

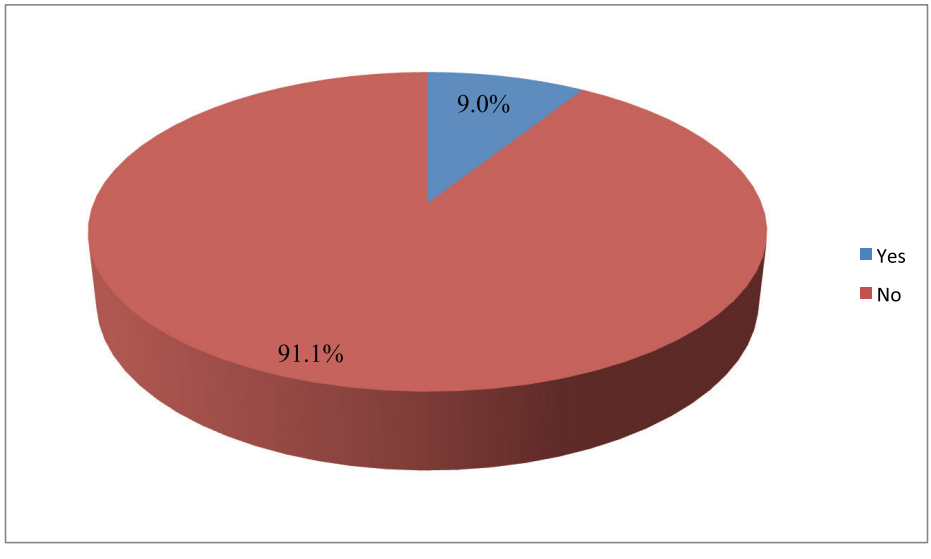

Figure 4. Smoking habits among clinical and non-clinical students. Yes = smokers, No = non-smokers.

Table 5. Smoking behavior of participants.

Variable	Clinical *n* (%)	Non-clinical *n* (%)	X^2	*P*
Non-smokers	134 (90.5%)	160 (91.4%)	0.077	0.781
Smokers	14 (9.5%)	15 (8.6%)		

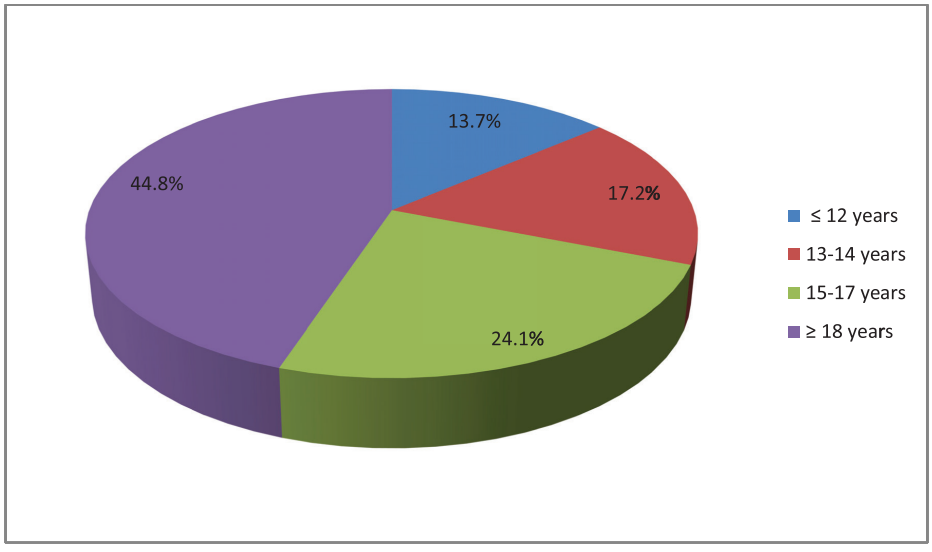

Figure 5. Age at first time of smoking of clinical and non-clinical students.

Table 6. Dietary habits of clinical students.

Food item	Low *n* (%)	Moderate *n* (%)	High *n* (%)
Meat	24 (16.2%)	62 (41.9%)	62 (41.9%)
Breakfast cereals	107 (72.3%)	36 (24.5%)	5 (3.4%)
Vegetables	40 (27.0%)	63 (42.6%)	45 (30.9%)
Fruits	107 (72.3%)	32 (21.6%)	9 (6.1%)
Carbohydrate-rich	15 (10.1%)	50 (33.8%)	8 (56.1%)
Protein-rich	44 (29.7%)	71 (48.0%)	33 (22.3%)
Salt	44 (29.7%)	90 (60.9%)	14 (9.5%)

Dietary habits of non-clinical students

Majority of respondents consumed meat (89, 50.9%) and vegetables (71, 40.6%) moderately. Low consumption of breakfast cereals (84, 48.0%) and fruits (89, 50.9%) was reported among a large proportion of the participants. Moderate consumption of salt and protein-rich foods was reported among 108 (61.7%) and 79 (45.1%) of non-clinical participants, respectively. Eighty nine (50.9%) of participants reported high consumption of carbohydrate rich foods, while 99 (56.6%) preferred their foods boiled (Table 7).

Self-efficacy of clinical and non-clinical students

The average self-efficacy scores of clinical and known clinical students were 33.43 ± 3.91 and 32.07±4.82, respectively (Table 9).

Quality of life of clinical and non-clinical students

The overall average quality of life score for clinical and non-clinical students were 69.0 ± 11.0 and 63.8 ± 12.7, respectively (Table 10).

Table 7. Dietary habits of non-clinical students.

Food item	Low *n* (%)	Moderate *n* (%)	High *n* (%)
Meat	37 (21.1%)	89 (50.9%)	49 (28.0%)
Breakfast cereals	84 (48.0%)	74 (42.5%)	17 (9.7%)
Vegetables	47 (26.9%)	71 (40.6%)	57 (22.5%)
Fruits	89 (50.9%)	67 (38.3%)	19 (10.9%)
Carbohydrate-rich	25 (14.3%)	61 (34.9%)	89 (50.4%)
Protein-rich	59 (33.7%)	79 (45.4%)	37 (21.1%)
Salt	49 (28.0%)	108 (61.7%)	18 (10.3%)

Discussion

Health behaviors of clinical and non-clinical students

Physical activity

Proportion of the participants in this study that had a low physical activity level was 31%. This finding is in agreement with Bianchini de Quadros et al. [32], who stated that a similar proportion of Brazilian students had low physical activity levels. This is also in line with findings of Abolfotou et al. [33] that

Table 8. Results of inferential statistics of the differences in dietary habits between clinical and non-clinical students.

Food item	X^2	*p*
Meat	6.912	0.032
Breakfast cereal	20.327	0.000
Vegetables	0.197	0.906
Fruits	15.449	0.000
Carbohydrate-rich	1.553	0.460
Protein-rich	0.587	0.746
Salt	0.149	0.928

Table 9. Self-efficacy of clinical and non-clinical students.

Groups	Mean ± standard deviation (SD)	*t*	*p*
Clinical	33.43 ± 3.91	2.73	0.007
Non-clinical	32.07 ± 4.82		

Table 10. Quality of life of clinical and non-clinical students for all domains.

Domain	Clinical	Non-clinical	*t*	*p*
Physical	73.4 ± 12.2	65.5 ± 15.1	5.18	0.001
Psychological	72.3 ± 13.6	67.3 ± 15.0	3.12	0.002
Social relationships	69.3 ± 12.4	65.2 ± 17.9	2.18	0.03
Environmental	61.0 ± 12.4	57.3 ± 14.9	3.81	0.015

Table 11. Average Quality of Life of Clinical and Non-clinical students.

Groups	Mean ± SD	*t*	*p*
Clinical	69.0 ± 11.0	3.89	0.001
Non-clinical	63.8 ± 12.7		

reported that 33.8% of students in his study had low physical activity levels. Furthermore, the findings are also in tandem with a study by Wattanapisit et al. [34]. The reason for the low physical activity level in students could be as a result of study-related activities which limits students' physical activity to walking only to classes and prevents them from getting involved in more vigorous activities. It could also be as a result of inadequate facilities and policies to promote physical activity levels in university students and also said could be as a result of the growing trend of sedentary behavior amongst university students especially non-clinical students. Clinical students are, however, not sedentary due to the high demands of clinical work.

Alcohol use

In this study, a large proportion of the students were non-drinkers a small proportion of the entire population of students were hazardous drinkers. This finding is contrasting with that of Davoren et al. [35] who reported that about two-thirds of a university population were hazardous drinkers in a study carried out in the United Kingdom and stated that students in the European Region were the heaviest drinking region in the world. This is also in line with studies of Webb et al. [36]. It is, however, in contrast with that of Blank et al. [37] who recorded that 36% of participants were hazardous users in a study carried out in New Zealand. This difference in hazardous drinking among student population in different countries could be as a result of the perception of drinking alcohol and the choice lifestyle of different student populations around the globe. Furthermore, the proportion of clinical students who used alcohol was greater than the proportion of non-clinical students who used. This finding was similar to that of Puryer et al. [38] this might be because clinical students who use alcohol believe it is a way to ease the tension of intensive studying and stress.

Psychoactive substance use

Findings from this study indicates that a larger proportion of non-clinical students use psychoactive substances compared to the proportion of clinical students who use, and only non-clinical students had a proportion of substantial level psychoactive substance use. This result could be as a result of inadequate information among the non-clinical students on the effect and implications of psychoactive substances on health. In addition, the overall prevalence of psychoactive substance use was 16.4%, which was lower than the proportion of students who used psychoactive substance in a study by Osman et al. [39]. The difference in the use of psychoactive substances across student populations in different countries could be as a result of difference in societal norms concerning the use of different kinds of psychoactive substances.

Smoking habits

Almost an equal proportion of clinical and non-clinical students reported to smoke cigarettes. The results reveal that the level of smoking in clinical students is not much different from that of non-clinical students and this could further mean that clinical students, with the knowledge on the effects of smoking they had, did not change their smoking habits. This finding does not correspond with those of Mentintas et al. [40] in which 42.5% of students who participated in his study, a larger amount of

non-clinical students smoked than the clinical student population (60.9% *vs.* 33.9%). He stated that the difference would be because of the course of study as non-clinical students would not have as much knowledge on the damage tobacco has on health as clinical students would. A larger proportion of smokers began smoking at 18 years of age. This does not correspond with findings of Hesketh et al. [41] in which a larger proportion began smoking at 10 years of age. The reason behind this could be influence of environment on those who began smoking at a younger age.

Dietary habits

A larger population of the respondents ate foods rich in carbohydrates as opposed to the population of those who ate adequate amount of protein-rich foods, vegetables, and fruits per week. The high consumption of carbohydrate rich foods could be because they are the most readily available foods the respondent could easily find. This finding is in contrast to those of Lee and Yuen Loke [42] in which 35.2% and 48.9% of his population samples ate fruits and vegetables regularly.

Self-efficacy of clinical and non-clinical students

In this study, clinical students were revealed to have higher self-efficacy than non-clinical students. This may be due to the fact that clinical students need to believe in their capabilities and hence be very efficacious so as to be able to easily handle stressful and tough situations and take actions concerning the care of their patients. This is in agreement with the findings of Alavi, [43]. He also stated that clinical students with lower self-efficacy would not be able to handle difficulties encountered in learning and future clinical practice.

Quality of life of clinical and non-clinical students

In all the domains representing quality of life, clinical students had a greater value than non-clinical students. The overall score for quality of life between clinical and non-clinical students also shows that clinical students have a better perception of their quality of life than non-clinical students. The domains with the highest quality of life scores were the physical and psychological domain, while the domain with lowest scores was the environmental domain. The findings of this study corresponds with those of Ducinskiene et al. [44], Pagnim and De Queiroz [45], and Zhang et al. [46], which revealed that among the population of students used for his study, the environmental domain had lowest values for quality of life of students. This may be due to a possibility that elements of the environmental domain are stressors to university students, these include transport, financial resources and opportunities for acquiring new educational information and skills. This is in view with Ducinskiene et al. [44] who stated that there should be better accessibility and availability of educational opportunities as that would improve quality of life.

Conclusion and Recommendations

Based on the findings of this study, most of the respondents consumed more foods rich in carbohydrates and less of proteins, vegetables and fruits. Health risk behaviors, such as alcohol use, smoking, and use of psychoactive substance were practiced by clinical and non-clinical students. Clinical students had a higher self-efficacy and a better quality of life than non-clinical students. Therefore, enlightenment programs should be regularly organized on the consequences of risky health behaviors among students populations and research should be carried out on other health behaviors, such as sexual behaviors among students. Similar studies should be conducted in other geo-political zones in Nigeria.

Conflict of interest

All authors declared that they have no conflict of interest.

References

[1] Dinger MK, Waigandt A. Dietary intake and physical activity behaviours of male and female college students. Am J Health Promot 1997; 11:360–2.
[2] Arnett J. Emerging adulthood. A theory of development from the late teens through the twenties. Am Psychol 2000; 55:469–80.
[3] Gochman DS. Health behaviours research: definitions and diversity. In: Gochman DS (ed.). Handbook of health behaviour research, Vol. 1, 1997.
[4] Heszen I, Sek H. Health Psychology, 2008.
[5] Ownby RL, Acevedo A, Jacobs RJ, Caballero J, Waldrop-Valverde D. Negative and positive beliefs related to mood and health. Am J Health Behav 2014; 38(4): 586–97.
[6] Morgan DJ, Okeke IN, Laxminarayan R, Perencevich EN, Weisenberg S. Non-prescription antimicrobial use worldwide: a systematic review. Lancet Infect Dis 2011; 11(9):692–701
[7] Ichiyama MA, Kruse MI.The social contexts of binge alcohol drinking among private university freshmen. J Alcohol Drug Educ 1998; 44:18–33.

[8] Stretcher VJ, Rosenstock JM. The health belief model. Health Behav Health Educ 1997; 41–59.
[9] Bandura A. Self-efficacy: the exercise of control. W.H. Freeman, New York, NY, 1997.
[10] Von Ah D, Ebert S, Ngamvitroj A, Park N, Kang DH. Predictors of health behaviours in college students. J Adv Nurs 2004; 48(5):463–74.
[11] World Health Quality of Life Group. Development of the world health organization WHOQOL-BREF quality of life assessment. Psychol Med 1998; 28:555–8.
[12] Zielinska-Wieczkowska H, Muszalik M, Kedziora-Komatowska K. The analysis of aging and elderly age quality in empirical research: data based on the University of the third age (U3A) students. Arch Gerontol Geriatr 2012; 55(1):195–9.
[13] Winkleby MA, Foighery E, Dunn M, Kole S, Ahn D, Killen J. Effects of an advocacy intervention to reduce smoking among teenagers. Arch Paediatr Adolesc Med 2004; 1582:69–275.
[14] National Bureau of Statistics. Pan 111: health, employment, public safety, population and vital registration. Social Statistics in Nigeria,, pp 66–8, 2012
[15] Lee R, Yuen Loke A. Psychosocial well-being of university students in Hong Kong. Publ Health Nurs 2005; 22:209–20.
[16] Craig CL1, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: 12-country reliability and validity. Med Sci Sports Exerc 2003; 35(8):1381–95.
[17] Kurtze N, Rangul V, Hustvedt B. Reliability and validity of the international physical activity questionnaire in the Nord-Trondelag health study (HUNT) population of men. BMC Med Res Methodol 2008; 8:63.
[18] Adewuya AO. Validation of the alcohol use disorders identification test (AUDIT) as a screening tool for alcohol-related problems among Nigerian university students. Alcohol Alcohol 2005; 40:575–7.
[19] Bischof G, Reinhardt S, Grothues J, Dybek I, Meyer C, Hapke U, et al. Effects of item sequence on the performance of the AUDIT in general practices. Drug Alcohol Depend 2005; 79:373–7.
[20] Dyrbye L, Thomas M, Huschka M, Lawson K, Novotry P, Sloan A, et al. A multicentre study of burnout, depression and quality of life of minority and non-minority US medical students Minnesota USA. Mayo Clin Proc 2006; 81:1435–42.
[21] Aertgeerts B, Buntinx F, Ansoms S, Fevery J. Questionnaires are better than laboratory tests to screen for current alcohol abuse or dependence in a male inpatient population. Acta Clin Belg 2002; 57:241–9.
[22] Carey KB, Carey MP, Chandra PS. Psychometric evaluation of the alcohol use disorders identification test and short drug abuse screening test with psychiatric patients in India. J Clin Psychiatry 2003; 64:767–74.
[23] Selin KH. Test-retest reliability of the alcohol use disorder identification test in a general population sample. Alcohol Clin Exp Res 2003; 27:1428–35.
[24] Gómez A, Conde A, Santana JM, Jorrín A, Serrano IM, Medina R. The diagnostic usefulness of AUDIT and AUDIT-C for detecting hazardous drinkers in the elderly. Aging Ment Health 2006; 10:558–61.
[25] Pérula-de-Torres LA, Fernández-García JA, Arias-Vega R, Muriel-Palomino M, Márquez-Rebollo E, Ruiz-Moral R. Validity of AUDIT test for detection of disorders related with alcohol consumption in women. Med Clín 2005; 125:727–30.
[26] Lima CT, Freire AC, Silva AP, Teixeira RM, Farrel M, Farrel M. Concurrent and construct validity of the audit in urban Brazilian sample. Alcohol Alcohol 2005; 40:584–9.
[27] Selin KH. Test-retest reliability of the alcohol use disorder identification test in a general population sample. Alcoholism Clin Exp Res 2003; 27:1428–35.
[28] Odunaiya, NA, Louw QA, Grimmers-Sommers K, Ogah S. Development, initial content validation and reliability of Nigerian Composite Lifestyle CVD risk factors questionnaire for adolescent. Afr Health Sci 2014; 14:606–7.
[29] Schwarzer R, Jerusalem M. Generalized self-efficacy scale. Measures in health psychology: a user's portfolio. Causal Control Beliefs 2005; 4:35–7.
[30] Leganger A, Kraft P, Roysamb E. Perceived self-efficacy in health behaviour research: conceptualization, measurement and correlates. Psychol Health 2000; 15:51–69.
[31] Scholz U, Gutierrez-Doña B, Sud S, Schwarzer R. Is general self-efficacy a universal construct Psychometric findings from 25 countries. Eur J Psychol Assess 2002; 18:242–51.
[32] Bianchini de Quadros J, Petroski E, Santos-Silver D, Pinheiro-Gordia A. Prevalence of physical inactivity amongst Brazilian University students: its association with socio-demographic variables. Scientific Electronic Library online 2009. Available via http://Scielo@scielo.org (Accessed 16 January 2009).
[33] Abolfotouh M, Bassiouni F, Mounir G, Fayyad R. Health-related lifestyles and risk behaviours among students in Alexandria University hostels in Egypt. East Mediterr Health J 2007; 13(2):376–91.
[34] Wattanapisit A, Fungthangcharoen K, Saengow U, Vijitpongjinda S. BioMedical Journal Open Access 2016. Available via http://bmjopen.bmj.com (Accessed 16 January 2018).
[35] Davoren M, Desmant J, Shiely F, Perry I. Alcohol consumption among university students in Ireland and the united Kingdom from 2002 to 2014: a systematic review. BMC Public Health 2016; 16:173–4

[36] Webb E, Ashton C, Kelly P, Kamali F. Alcohol and drug use in UK university students. Lancet, 1996; 348:922–92
[37] Blank M, Connor J, Gray A, Tustin K. Screening for hazardous alcohol use among university students using individual questions from the alcohol use disorder identification test. Drug Alcohol Rev 2015; 34:540–8.
[38] Puryer J, Rowley A, Saimbi J, Waylen A. The legal and moral principles of clinical and non-clinical undergraduate students regarding substance use: a pilot prospect. Br Dent J 2017; 222:198–207.
[39] Osman T, Victor C, Abdulmoneim A, Mohammed H, Abdalla F, Ahmed A, et al. Epidemiology of substance use among university students in Sudan. J Addict 2016; 12:1–8.
[40] Metintas S, Samboyaci M, Nahoglu S, Mentitas M, Kallyonou C, Etiz S. Smoking pattern of University students in Ekisehur, Turkey. Public Health 1998; 112(4):261–4.
[41] Hesketh T, Ding Q, Tomkins A. Smoking among youths in China. Am J Public Health 2001; 91:1653–5.
[42] Lee R, Yuanloke A. Concurrent and construct validity of audit in urban Brazilian Sample. Alcohol Alcohol 2005; 407:584–9.
[43] Alavi N. Self-efficacy in nursing students. Nurs Midwifery Stud 2014; 3:3–4.
[44] Duciskiene D, Kalediene R, Petraskine J. Quality of life among Lithuanian university students. Aita Media Litheanica 2003; 10(2):26–81.
[45] Pagnim D, De Queiroz, V. Comparison of quality of life between medical students and young general population. Educ Health 2015; 28;209–12.
[46] Zhang Y, Qu B, Lun S, Wang D, Gao Y, Liu J. Quality of life of medical students in China: a study using the WHOQOL-BREF. PLoS One 2012; 7(11):e49714

Author Queries

Please note that the running and article title has been updated. Kindly check.

Please provide the expansions for the Abbreviations "CVD, BREF, DAST, and PA."

Please provide in-text citation for Figure 5.

Please provide in-text citation for Tables 8 and 11.

Please provide in-text citation for references [24], [25], [26], and [27].

Please provide publisher's name and its location (city/state and country) for reference [3] and [14].

Please provide volume and page number for reference [4].

Please provide volume number for reference "[8]."