



ASSESSMENT OF HEALTH BEHAVIOURS AND FACTORS ASSOCIATED WITH PROTECTIVE AND RISKY HEALTH BEHAVIOURS AMONG POSTGRADUATE STUDENTS IN A TERTIARY INSTITUTION IN SOUTH WEST, NIGERIA

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ABSTRACT

Postgraduate students often engage in risky health behaviours despite the benefits of healthy practices. This study assessed the prevalence and determinants of healthy or risky health behaviours among postgraduate students at the University of Ibadan. A cross-sectional survey of 400 postgraduate students was conducted using multistage random sampling. Data were collected via self-administered structured and validated questionnaires, analysing health behaviours and associated factors. Healthy and risky behaviours were measured using standardized instruments: The Health-Promoting Lifestyle Profile II (HPLP-II) for protective behaviours, and the Alcohol Use Disorders Identification Test (AUDIT), Pittsburgh Sleep Quality Index (PSQI), and Kessler Psychological Distress Scale (K10) for risky behaviours like harmful alcohol use, poor sleep, and psychological distress. IBM SPSS Statistics 26.0 was used for analysis. Descriptive statistics were reported using frequency tables and charts. Bivariate and multivariable analysis were conducted to examine the factors associated with healthy and risky health behaviours. Significance associations were set at $p \leq 0.05$. Respondents were predominantly female (53.5%), young adults (96.8%), and single (84.8%). Significant associations included gender and good dieting ($p < 0.001$), while alcohol use was associated with gender ($p = 0.001$), religion ($p = 0.005$), ethnicity ($p = 0.034$), and accommodation mode ($p = 0.020$). Off-campus residents reported higher alcohol consumption and psychological distress ($p = 0.035$). Binary logistic regression revealed that females had higher odds of psychological distress (AOR=2.76), and students with light academic workloads had significantly higher odds of tobacco use (AOR=7.02). While physical activity and dietary habits were encouraging, psychological distress and fast-food consumption remain areas concerns. Gender, religion, and living arrangements significantly impact health behaviours, highlighting the need for targeted health promotion strategies focused on mental health support and healthy lifestyle promotion among postgraduate students.

Keywords: Postgraduate students, Health risk behaviours, Psychological distress, Dietary habits, Alcohol consumption.

INTRODUCTION

World health Organization (WHO) in 1948 defined health as “the state of complete physical, social and mental wellbeing and not merely the absence of disease or infirmity”¹. Health behaviour, also known as health-related behaviour is referred to as series of actions and inactions which can be deliberate or otherwise, choices, habits and lifestyles that individuals or communities engage in, that can in turn promote or hinder their health and well-being. Such behavioural patterns include but are not limited to physical activity, dietary choices, smoking, alcohol

consumption, substance use, sleep patterns, hygiene and sanitation, adherence to medical advice, screening and preventive measures, safe sexual practices, healthcare seeking behaviour, and stress management². Among students, establishing healthy behaviours during young adulthood can prevent health problems later in life. However, research shows that many university students engage in risky health behaviours like physical inactivity, poor diet, tobacco and alcohol abuse³. A Nigerian study reported 41.7% of the undergraduates to be engaging in low physical activity, more than half (52.4%) eats fewer fruits and vegetables than recommended and 21.7% were current

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smokers⁴. These behaviours are often established during the transition from adolescence to adulthood as students' experience greater independence and undergo lifestyle changes⁵. Stress, lack of time, and adjusting to a new social environment can also negatively impact students' health habits. Despite extensive knowledge on the benefits of healthy behaviours, research indicates that many university students still engage in risky health practices. A study of undergraduates at five Nigerian universities found that 60.3% had poor overall lifestyle habits including physical inactivity, unhealthy diet, tobacco and alcohol use⁴. Postgraduate students face considerable high levels of psychological distress and time demands that may interfere with healthy behaviours. A systematic review found that graduate students had a more than two-fold increased risk of depression and anxiety compared to the general population (Evans *et al.*, 2018). These issues are often exacerbated by academic pressure, financial concerns, and lack of work-life balance⁶. This issue may further worsen the poor or harmful health-related behaviour among postgraduate students. Nonetheless, research focused specifically on the health behaviours of postgraduate students remains relatively limited⁷. While most research has focused on undergraduates, the postgraduate student population has distinct experiences related to their higher workload demands, longer program duration, financial constraints, family responsibilities, and job-seeking stress⁸.

In Nigeria, postgraduate education has increased enrolment at institutions like the University of Ibadan⁹. However, there is little knowledge about the health status and behaviours among these students. Having a clear understanding of these behavioural patterns and trends including their diet, physical activity, substance use, sleep, stress levels and general mental health can inform targeted interventions and policies to improve student well-being and productivity. Assessing the prevalence of risky behaviours and their determinants is critical to identifying the needs and priorities among this understudied group. Ultimately, improving health behaviours enhances students' quality of life, minimizes preventable morbidity, and fosters a productive learning environment³. This aligns with the Nigerian National Universities Commission's mandate to ensure student wellness along with academic excellence (NUC, 2019). Hence, this study assessed the health risk behaviours, patterns in health risk behaviours and associated factors among postgraduate students at the University of Ibadan between January to June, 2024.

MATERIALS AND METHODS

Study Area

This study was carried out among the selected postgraduate students of University of Ibadan, Nigeria. The university is the oldest degree awarding in Nigeria and located in Oyo State, founded in 1948 as University College Ibadan, one of the many colleges within the University of London. It became independent university in 1962. The University of Ibadan is made up of 205 academic departments organized

into 17 Faculties, namely; Arts, Science, Basic Medical Sciences, Clinical Sciences, Agriculture, the Social Sciences, Education, Veterinary Medicine, Pharmacy, Technology, Law, Public Health, Dentistry, Economics and Management Sciences, all Renewable Natural Resources, Environmental Design and Management, and Multidisciplinary Studies. The Faculties of the Basic Medical Sciences, Clinical Sciences, Public Health and Dentistry are organized as a College of Medicine. The university has other academic units, among which are: Institute of Child Health (ICH), Institute of Education, Institute of African Studies (IAS), Centre for Child Adolescent and Mental Health (CCAM), Centre for Entrepreneurship and Innovation (CEI), Institute for Advanced Medical Research and Training (IAMRAT), Institute of Cardiovascular Diseases, Centre for Drug Discovery, Development and Production (CDDDP) and Centre for Control and Prevention of Zoonosis (CCPZ). The recently established Infectious Diseases Institute (IDI), School of Business (UISB) and National Institute for Maternal, Child and Neonatal Health (NIMCNH) have commenced operation¹⁰. The University currently has a total student population of over 41,200 (both undergraduates and postgraduates) of which over 16,480 (40%) are postgraduate students¹⁰.

Study Design

This study employed a descriptive cross-sectional study design and included undergraduates enrolled in masters or doctoral programme at the university, while postgraduate students with underlying medical conditions that can prevent them from providing consent and responses were excluded. The sample size was estimated using Krejcie and Morgan (1970) formula for determining sample size from a finite population $n = \frac{x^2 Np(1-p)}{d^2(N-1) + x^2 p(1-p)}$ ¹¹, with the total population N as 16,500 postgraduate students and 0.5 was assumed as p to provide the maximum sample size, a minimum sample size of 414 was obtained after adjusting for 10% non-response rate. However, a total of 400 were deemed suitable for analysis after administration and appropriate sorting.

Study Instrument and scoring of outcome variables

This study utilized a pretested self-administered semi-structured questionnaire to obtain information on health risk behaviours and associated factors among the respondents, the questionnaire sought information on socio-demographic characteristics, academic factors, psychosocial factors, health risk behaviours and self-rated health outcomes. For the health risk behaviours, structured and already validated questionnaire with good reliability were employed. For the health promoting lifestyle was measured using health promoting lifestyle profile II (HPLP-II), a 52-item scale that measures six dimensions of health-promoting behaviours, namely: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The scale uses a 4-point Likert scale ranging from 1 (never) to 4 (routinely)¹². The

total and subscale scores were calculated. A score above the sample median was categorized as "Good" for positive health behaviours (e.g., "Good dieting"), while a score at or below the median was categorized as "No.". For alcohol usage, Alcohol Use Disorders Identification Test (AUDIT) was used. It a 10-item scale that screens for hazardous and harmful alcohol consumption. The scale covers three domains: alcohol consumption, alcohol dependence, and alcohol-related problems. The scale uses a 5-point Likert scale ranging from 0 (never) to 4 (daily or almost daily) ¹³. A total score of 8 or more was used as the cut-off point to classify respondents as engaging in hazardous or harmful alcohol use ("Yes"), while a score below 8 was categorized as "No."

Pittsburgh sleep quality index (PSQI) was used to assess the sleep quality of the respondents. This is a 19-item scale that assesses sleep quality and disturbances over a one-month time interval. The scale measures seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The scale uses a 4-point Likert scale ranging from 0 (not during the past month) to 3 (three or more times a week) ¹⁴. A global score greater than 5 was used to indicate "Poor" sleep quality. For the prevalence of protective behaviours, this was inverted to report "Good" sleep quality (PSQI \leq 5). Kessler psychological distress scale (K10) was used to measure the psychological distress of the respondents. The tool is 10-item scale that measures general psychological distress based on symptoms of anxiety and depression. The scale uses a 5-point Likert scale ranging from 1 (none of the time) to 5 (all of the time) ¹⁵. The total score was computed, and a validated cut-off point (typically \geq 20) was applied to classify respondents as experiencing significant psychological distress ("Yes") or not ("No").

Sampling Techniques

The respondents were selected using multistage sampling technique: The population of the postgraduate students were divided into strata based on faculties, where 10 faculties were selected via simple random sampling using a random number generator. Within each selected faculty, the sample of postgraduate students was divided into another stratum based on departments. Some faculties have more departments than others. Hence, a simple random sample of departments was done by a random number generator and was used to select a minimum of three

departments from each faculty which served as the secondary sampling units for the next stage. Within each selected department, a simple random sample of individuals were then selected using a random number generator. The selected individuals then served as the ultimate sampling units for data collection. The sample size for each stage was calculated using the proportional allocation method, which assigns sample size to groups according to its proportion in the population.

Data Analysis

Data collected were entered into and analysed with IBM SPSS Statistics version 23.0. Descriptive analyses were conducted and findings were presented using frequencies and percentage using tables in tabular forms and charts, to determine the prevalence of health risk behaviours. Chi-square test was used to examine the relationship between academic factors (program year, mode of study, workload) and the occurrence of health risk behaviours among the postgraduate students. Furthermore, Chi-square test and regression analysis were done to analyse how socio-demographic factors (age, gender, relationship status, living conditions) relate to the presence or absence of each of the health risk behaviours among postgraduate students. Level of significance was set at $p < 0.05$.

Ethical Considerations

This study adhered to the ethical principles and guidelines for conducting research involving human participants, such as non-maleficence, beneficence, respect for persons and justice. The study also complied with the UI/UCH Research Ethics Policy and Procedures, which outlined the standards and procedures for conducting ethical research at UI. Before initiating the data collection process, an ethical approval was obtained from UI/UCH Research Ethics Committee, College of Medicine, University of Ibadan.

RESULTS

Four hundred and fourteen questionnaires were administered for the study, after sort for missing and accounted for non-response, a total of 400 were deemed suitable for analysis. Table 4.1 shows the socio-demographic characteristics of the study respondents. Most of the respondents were females (53.5%), young adult (96.8%), single (84.8%), lived on-campus (76.8%) and unemployed (39.3%).

Table 1. Socio-demographic characteristics of respondents (N = 400).

Variable	N	%
Gender		
Male	186	46.5
Female	214	53.5
Age group		
Young adult	387	96.8
Middle aged	13	3.3

Religion		
Christianity	350	87.5
Islam	43	10.8
African Traditional Religion	7	1.8
Marital status		
Single	339	84.8
Married	52	13.0
Separated	5	1.3
Divorced	2	.5
Widowed	2	.5
Ethnicity		
Hausa	14	3.5
Igbo	38	9.5
Yoruba	277	69.3
Others	71	17.8
Mode of accommodation		
On-campus	307	76.8
Off-campus (rented)	65	16.3
Off-campus (with family)	28	7.0
Employment status		
Unemployed	157	39.3
Self-employed	153	38.3
Employee	90	22.5

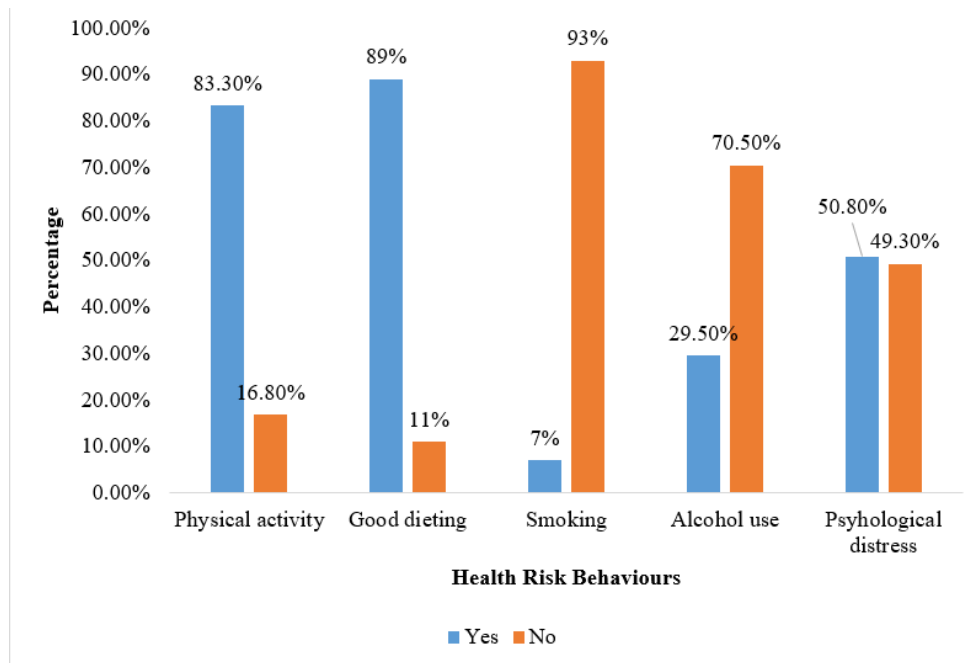


Figure 1. Prevalence of Protective and Risky Health Behaviours.

The prevalence of protective and risky health behaviours amongst the respondents. For Physical Activity, we have ‘Yes’ (88.30%); Good Dieting, ‘Yes’ (89%); Smoking, ‘No’ (93%); Alcohol Use, ‘No’ (70.50%); Psychological Distress, ‘Yes’ (50.80%) (Figure 1). Most of the respondents had physical activity more than thrice per week (47.7%). The average minutes of engagement in physical activity per week as reported by most of the respondents was 30 minutes to 1 hour (46.2%). With respect to good dieting, majority of the respondents consumed fast foods

just 1 - 2 times per week (57.0%), and majority (62.5%) consumed fruits just 1 – 2 times per week as well. Majority (42.9%) occasionally smoked cigarettes. 27.6% of the respondents had a feeling of nervousness in the past 4 weeks some of the time, while 19.2 % had a feeling of hopelessness in the past 4 weeks some of the time as well. 25.1% had a feeling of restlessness some of the time, 22.7% felt depressed some of the time and 15.3% felt worthless some of the time, all in the past 4 weeks (Table 2).

Table 2a. Patterns of Protective and Risky Health Behaviour among Respondents.

Variables	Frequency	Percentage
Physical Activity		
More than thrice	159	47.7
Thrice	60	18.0
Twice	69	20.7
Once	45	13.5
Average minutes of engagement per week		
Less than 30 minutes	80	24.0
30 minutes to 1 hour	154	46.2
More than 1 hour	99	29.7
Good dieting		
Frequency of fast-food consumption		
Never	55	13.8
1 - 2 times	228	57.0
3 - 4 times	97	24.3
5 or more times	20	5.0
Frequency of fruit consumption		
Never	64	16.0
1 - 2 times	250	62.5
3 - 4 times	71	17.8
5 or more times	15	3.8
Smoking		
Frequency of tobacco usage		
Rarely	11	39.3
Occasionally	12	42.9
Monthly	3	10.7
Weekly	1	3.6
Daily	1	3.6
Feeling of nervousness in the past 4 weeks		
All of the time	11	5.4
Most of the time	22	10.8
Some of the time	56	27.6
A little of the time	45	22.2
None of the time	69	34.0
Feeling of hopelessness in the past 4 weeks		
All of the time	5	2.5
Most of the time	17	8.4
Some of the time	39	19.2
A little of the time	54	26.6
None of the time	88	43.3

Table 2b. Patterns of Protective and Risky Health Behaviour among Respondents.

Variables	Frequency	Percentage
Feeling of restlessness in the past 4 weeks		
All of the time	7	3.4
Most of the time	21	10.3
Some of the time	51	25.1
A little of the time	69	34.0
None of the time	55	27.1
Feeling of depression in the past 4 weeks		
All of the time	3	1.5
Most of the time	13	6.4
Some of the time	46	22.7

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A little of the time	51	25.1
None of the time	90	44.3
Feeling of being stressed in the past 4 weeks		
All of the time	10	4.9
Most of the time	35	17.2
Some of the time	60	29.6
A little of the time	63	31.0
None of the time	35	17.2
Feeling of worthlessness in the past 4 weeks		
All of the time	5	2.5
Most of the time	12	5.9
Some of the time	31	15.3
A little of the time	23	11.3
None of the time	132	65.0

There was a strong association between good dieting which was one the variables for measuring protective and risky health behaviour and gender. And this was the only significant variable that we have among the socio-demographic characteristics; others were insignificant (Table 3a). However, in table 3c, alcohol use was significant with gender, religion, ethnicity, mode of accommodation, while the second factor, psychological distress was insignificant the socio-demographic characteristics.

Table 3a. Association between socio-demographic characteristics and health risk behaviour (Physical activity, Good dieting, Tobacco use).

Socio-demographic	Physical activity		Statistics	Good dieting		Statistics	Tobacco use		Statistics
	No	Yes		No	Yes		No	Yes	
Gender			$X^2=0.963$			$X^2=22.956$			$X^2=0.949$
Male	27(14.5%)	159(85.5%)	P=0.326	116(62.4%)	70(37.6%)	P=0.000*	170(91.4%)	16(8.6%)	P=0.330
Female	40(18.7%)	174(81.3%)		133(62.1%)	81(37.9%)		202(94.4%)	12(5.6%)	
Age group			$X^2=0.997$			$X^2=0.000$			$X^2=0.000$
Young adult	63(16.3%)	324(83.7%)	P=0.318	191(49.4%)	196(50.6%)	P=1.000	360(93.0%)	27(7.0%)	P=1.000
Middle aged	4(30.8%)	9(69.2%)		6(46.2%)	7(53.8%)		12(92.3%)	1(7.7%)	
Religion			$X^2=1.531$			$X^2=1.448$			$X^2=1.347$
Christianity	60(17.1%)	290(82.9%)	P=0.465	175(50.0%)	175(50.0%)	P=0.485	326(93.1%)	24(6.9%)	P=0.510
Islam	5(11.6%)	38(88.4%)		20(46.5%)	23(53.5%)		39(90.7%)	4(9.3%)	
African Traditional Religion	2(28.6%)	5(71.4%)		2(28.6%)	5(71.4%)		7(100.0%)	0(0.0%)	
Marital status			$X^2=3.805$			$X^2=7.949$			$X^2=8.288$
Single	54(15.9%)	285(84.1%)	P=0.433	164(48.4%)	175(51.6%)	P=0.093	316(93.2%)	23(6.8%)	P=0.082
Married	10(19.2%)	42(80.8%)		31(59.6%)	21(40.4%)		50(96.2%)	2(3.8%)	
Separated	2(40.0%)	3(60.0%)		2(40.0%)	3(60.0%)		3(60.0%)	2(40.0%)	
Divorced	1(50.0%)	1(50.0%)		0(0.0%)	2(100.0%)		1(50.0%)	1(50.0%)	
Widowed	0(0.0%)	2(100.0%)		0(0.0%)	2(100.0%)		2(100.0%)	0(0.0%)	

Table 3b. Association between socio-demographic characteristics and health risk behaviour (Physical activity, Good dieting, Tobacco use).

Socio-demographic	Physical activity		Statistics	Good dieting		Statistics	Tobacco use		Statistics
	No	Yes		No	Yes		No	Yes	
Ethnicity			$X^2=6.010$			$X^2=10.431$			$X^2=6.842$
Hausa	2(14.3%)	12(85.7%)	P=0.646	7(50.0%)	7(50.0%)	P=0.236	12(85.7%)	2(14.3%)	P=0.554
Igbo	7(18.4%)	31(81.6%)		20(52.6%)	18(47.4%)		34(89.5%)	4(10.5%)	
Yoruba	48(17.3%)	229(82.7%)		143(51.6%)	134(48.4%)		237(92.8%)	20(7.2%)	
Bini	4(25.0%)	12(75.0%)		3(18.8%)	13(81.3%)		16(100.0%)	0(0.0%)	
Idoma and Tiv	2(7.7%)	24(92.3%)		12(46.2%)	14(53.8%)		25(96.2%)	1(3.8%)	
Efik and Ibibio	3(25.0%)	9(75.0%)		3(25.0%)	9(75.0%)		11(91.7%)	1(8.3%)	
Urhobo	0(0.0%)	4(100.0%)		2(50.0%)	2(50.0%)		4(100.0%)	0(0.0%)	
Isoko	0(0.0%)	2(100.0%)		1(50.0%)	1(50.0%)		2(100.0%)	0(0.0%)	
Foreigners	1(9.1%)	10(90.9%)		6(54.5%)	5(45.5%)		11(100.0%)	0(0.0%)	

Mode of accommodation		X ² =0.683			X ² =0.893			X ² =4.222	
On-campus	49(16.0%)	258(84.0%)	P=0.711	148(48.2%)	159(51.8%)	P=0.640	284(92.5%)	23(7.5%)	P=0.121
Off-campus (rented)	12(18.5%)	53(81.5%)		33(50.8%)	32(49.2%)		60(92.3%)	5(7.7%)	
Off-campus (with family)	6(21.4%)	22(78.6%)		16(57.1%)	12(42.9%)		28(100.0%)	0(0.0%)	
Employment status		X ² =3.343			X ² =2.160			X ² =1.973	
Unemployed	33(21.0%)	124(79.0%)	P=0.188	72(45.9%)	85(54.1%)	P=0.340	149(94.9)	8(5.1%)	P=0.373
Self-employed	21(13.7%)	132(86.3%)		75(49.0%)	78(51.0%)		139(90.8%)	14(9.2%)	
Employee	12(14.4%)	77(85.6%)		50(55.6%)	40(44.4%)		84(93.3%)	6(6.7%)	

*Significant

Table 3c: Association between socio-demographic characteristics and health risk behaviour (Alcohol Use).

Socio-demographic	Alcohol use		Statistics
	No	Yes	
Gender			X ² =11.804
Male	115(61.8%)	71(38.2%)	P=0.001*
Female	167(78.0%)	47(22.0%)	
Age group			X ² =0.169
Young adult	274(70.8%)	113(29.2%)	P=0.681
Middle aged	8(61.5%)	5(38.5%)	
Religion			X ² =10.614
Christianity	241(68.9%)	109(31.1%)	P=0.005*
Islam	38(88.4%)	5(11.6%)	
African Traditional Religion	3(42.9%)	4(57.1%)	
Marital status			X ² =3.435
Single	243(71.7%)	96(28.3%)	P=0.488
Married	33(63.5%)	19(36.5%)	
Separated	3(60.0%)	2(40.0%)	
Divorced	1(50.0%)	1(50.0%)	
Widowed			
Ethnicity			X ² =16.608
Hausa	11(78.6%)	3(21.4%)	P=0.034*
Igbo	23(60.5%)	15(39.5%)	
Yoruba	205(74.0%)	72(26.0%)	
Bini	11(68.8%)	5(31.3%)	
Idoma and Tiv	18(69.2%)	8(30.8%)	
Efik and Ibibio	4(33.3%)	8(66.7%)	
Urhobo	2(50.0%)	2(50.0%)	
Isoko	2(100.0%)	0(0.0%)	
Foreigners	8(72.7%)	3(27.3%)	
Mode of accommodation			X ² =7.874
On-campus	222(72.3%)	85(27.7%)	P=0.020*
Off-campus (rented)	37(56.9%)	28(43.1%)	
Off-campus (with family)	23(82.1%)	5(17.9%)	
Employment status			X ² =2.977
Unemployed	118(75.2%)	39(24.8%)	P=0.226
Self-employed	105(68.6%)	48(31.4%)	
Employee	59(65.6%)	31(34.4%)	

*Significant

Table 4 shows the results of binary logistic regression of individual factors associated with psychological distress. Taking the male gender as reference, females are 2.76 more likely to experience psychological distress than males, and the relationship between female and psychological distress was statistically significant. With respect to class schedules, taking those who take lectures in the mornings and afternoons as reference, those who take lectures throughout the day were 1.07 times more likely to experience psychological distress than those who take lectures only in the mornings and afternoons (Table 4)

Table 4. Binary Logistic Regression of Socio-demographic Factors Associated with Psychological Distress.

Variables	Adjusted Odds-ratio	95% confidence interval		P-value
Gender				
Male(ref)	1			
Female	2.76	1.829	4.160	0.000*
CLASS SCHEDULE				
Mornings and afternoons(ref)	1			
Throughout the day	1.07	0.620	1.857	0.800
Others	1.47	0.808	2.663	0.208

*Significant

In table 5 taking heavy academic workload as reference factor, those with light academic workload were 7.02 more likely to utilize tobacco than those with heavy and moderate workloads, and there was a strong statistical relationship between light academic workload and utilization of tobacco.

Table 5. Binary Logistic Regression of the Tobacco usage and Utilization of Tobacco.

Variables	Adjusted Odds-ratio	95% confidence interval		P-value
How would you describe your academic workload?				
Heavy(ref)	1			
Moderate	0.46	0.194	1.068	0.071
Light	7.02	1.782	27.676	0.005*

*Significant

DISCUSSION

This study assessed the health behaviours and factors associated with certain protective and risky health behaviours among postgraduate students of the University of Ibadan. Four hundred postgraduate students were enrolled, with nearly equal distribution of males and females. This gender balance enhances the generalizability of the findings to the broader postgraduate student population. The majority of respondents were young adults aged 18-35 years, reflecting the typical age range for postgraduate studies. This age demographic is a crucial period for establishing long-term health behaviours that can significantly impact future well-being and chronic disease risk. Most were Muslims while only one-fifths were Christian which aligns with the cultural and religious landscape of south-western Nigeria, where the study was conducted. The majority of the respondents were single which is unsurprising given the young adult age group. Being unmarried during postgraduate studies may influence social support systems, living arrangements, and health behaviour patterns. Additionally, the majority of students resided on-campus, which could shape their access to health-promoting resources, such as recreational facilities, dining options, and campus health services. Notably, a substantial proportion of respondents were either unemployed or self-employed, with only two-fifths

reporting formal employment. The ethnic diversity of the sample, with a predominance of Yoruba students reflects the multicultural nature of the University of Ibadan's student body. Cultural norms, beliefs, and practices related to health behaviours may vary across ethnic groups. The findings revealed varying levels of engagement in different health risk behaviours within this student population. The high prevalence of physical activity and good dietary habits among postgraduate students at the University of Ibadan is an encouraging and unexpected finding. Previous studies have often reported lower levels of engagement in health-promoting behaviours among university students¹⁶⁻¹⁸. This positive outcome could be attributed to several factors specific to the postgraduate student population and the University of Ibadan environment. Firstly, postgraduate students may have a heightened awareness of the importance of maintaining a healthy lifestyle due to their advanced academic pursuits and exposure to health-related knowledge¹⁹. Additionally, the demanding nature of postgraduate studies could motivate students to prioritize physical activity and healthy eating as a means of managing stress, improving cognitive function, and enhancing overall well-being^{20,21}. This could also be due to the availability of recreational activities including sports centres and walkable spaces available in the university environment. The availability of these resources could have encouraged regular physical activities²².

Furthermore, the finding of this study revealed that the majority of the respondents had good dietary habits, the high prevalence of good dieting practices aligns with findings from a study among university students in Ghana²³ suggesting potential cultural influences. The availability and accessibility of fresh produce in the local environment, such as the proximity of markets around the school area (such as Agbowo, Bodija, Sango and Ojoo market), as well as traditional dietary patterns in the school area, may contribute to the observed positive dietary patterns.

Less than one-fifth of the respondents in this study were current smokers, which is relatively lower than the rate reported among university students in Kenya (27.9%)²⁴. This unexpected finding could be attributed to several factors, including cultural norms, tobacco control policies, and the availability and accessibility of tobacco products. Cultural norms and attitudes towards tobacco use may vary across different regions and ethnic groups, influencing the acceptance and adoption of smoking behaviours (Table 2). Additionally, the implementation and enforcement of tobacco control policies like the National Tobacco Control Act of 2015 actions in Nigeria, such as smoke-free campus initiatives, taxation, and advertising restrictions, could have played a role in reducing the prevalence of smoking among the university students. Furthermore, the prevalence of alcohol use among the postgraduate students in this study is less than one-third which is lower than the rate of hazardous or harmful alcohol consumption reported among university students in South Africa (54%)²⁵. As this finding contrast with other studies²⁶. Alcohol consumption patterns and affordability, and societal acceptance.

A little above half of the respondents were found to have psychological distress which is similar consistent with previous research²⁷, thereby indicating a substantial burden of mental health issues among university students globally. The demanding nature of postgraduate studies, characterized by intense academic workloads, strict deadlines, and high expectations, coupled with financial constraints and the work-life balance issue can contribute to increased levels of psychological distress²⁸. This study revealed that, about half of the respondents were found to be engaging in physical activities for more than three times in a week and 30 minutes to one hour per session. The sufficiency of this may be assessed based on comparison with the recommended guidelines for optimal health benefits. Previous studies have emphasized the importance of at least 150 minutes of moderate-intensity aerobic activity or 75 minutes of vigorous-intensity aerobic activity per week, along with muscle-strengthening activities on at least two days per week^{29,30,31}. Hence, it is safe to adjudged the respondents in the study had sub-optimal physical activity which is similar to another Nigerian study among the university students which reported high prevalence of physical inactivity³². This study findings revealed a concerning trend of frequent fast-food consumption, with 57.0% of respondents reporting consuming fast food 1-2 times per week. This pattern is consistent with previous

studies that have highlighted the increasing popularity of fast food among university students due to factors such as convenience, affordability, and peer influence^{33,34}. However, this frequent consumption of fast food has been associated with various health risks, including obesity, cardiovascular diseases, and other chronic conditions³⁵. On a positive note, the majority of respondents reported consuming fruits 1-2 times per week, which aligns with dietary recommendations for fruit intake (Wallace *et al.*, 2020). Furthermore, there was a low prevalence of daily tobacco use and alcohol among the respondents in this study. However, occasional tobacco usage was common which may exposed the user to alcohol and nicotine-associated health risks^{36,37}. The study's findings however align with previous studies conducted among university students in Nigeria. ³⁸ reported a prevalence of current tobacco use ranging from 0.5% to 9.4% among university students in Nigeria. This could be attributed to several factors, including the specific socio-cultural context of the study population, the implementation of tobacco control policies within the university environment, or the influence of health promotion campaigns targeting tobacco use among students.

Furthermore, the study findings reveal a concerning trend of psychological distress among postgraduate students, with a significant proportion reporting symptoms such as feeling nervous, hopeless, restless, depressed, and worthless. These findings align with previous research highlighting the high prevalence of mental health issues among university students, often attributed to factors such as academic pressure, financial stress, and adjustment challenges^{39,40}. Notably, 61.0% of respondents reported sleeping less than 7 hours per night, which is below the recommended sleep duration of 7-9 hours for adults²⁹. Inadequate sleep can have detrimental effects on cognitive function, emotional well-being, and overall health⁴¹. The high prevalence of psychological distress and inadequate sleep among postgraduate students highlights the need for comprehensive mental health support services and interventions to promote well-being in this population. Dietary pattern was significantly associated with health risk behaviour as most respondents were found to have good dietary habits, while gender was associated with good dietary practices among the respondents which is similar to the previous research that reported gender differences in dietary patterns, where women generally exhibiting healthier eating behaviours compared to men^{42,43}. Similarly, alcohol use was significantly associated with gender, religion, ethnicity, and mode of accommodation among postgraduate students at the University of Ibadan. This gender difference in alcohol use patterns may be influenced by socio-cultural norms, expectations, and beliefs surrounding gender roles and alcohol consumption, similarly, religious beliefs often shape attitudes and behaviours towards alcohol and substance use⁴⁴, while accommodation may be influenced by factors such as living arrangements, social environments, and peer influences, which can shape alcohol consumption patterns.

Further analysis revealed that students attending classes throughout the day had a higher odds ratio (2.15) for diet utilization compared to those attending classes primarily in the mornings and afternoons

The finding that students with a light academic workload had a higher odds ratio (7.02) for tobacco utilization compared to those with a heavy workload is unexpected and contradicts previous studies in South Africa and Pakistan where higher academic stress and workload were associated with increased tobacco use as a coping mechanism^{45,46}. This unexpected finding could be related to the influence of social environments and peer networks. Students with a lighter academic workload may have more leisure time, leading to increased socialization and exposure to peer groups where tobacco use is more prevalent.

CONCLUSION

This study revealed a high prevalence of physical activity, good dietary habit. A substantial proportion of the respondents were found to have psychological distress while more of the respondents regularly consumes fast food. Gender was associated with dietary practice and alcohol consumption with female having healthier practice than male, while religion was associated low rate of alcohol consumption. These underscores the need to provide comprehensive mental health support for the postgraduate students and promotion of healthy dietary habits.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest

ETHICS APPROVAL

Not applicable

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AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

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