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Socio-Demographic Factors as Determinants of Healthy Lifestyle among Students of Tertiary Institutions in Abia North Senatorial District, Abia State, Nigeria

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Abstract

The study assessed socio-demographic factors as determinants of healthy lifestyle among students of tertiary institutions in Abia North Senatorial District, Abia State, Nigeria The study adopted correlational descriptive design. The study participants consisted of 18,905 students from two tertiary institutions in Abia North Senatorial District, Abia State. The sample size was 430 students of tertiary institutions drawn using proportional stratified random sampling technique. The Participant Information Form (PIF) and Health Promotion Lifestyle Profile II (HPLP II) were used for data collection. The internal consistency of the overall scale of the original version of the HPLP II reported a Cronbach's alpha of .901. Data were analysed using point biserial (rbp) correlation, independent samples t-test, and analysis of variance (ANOVA). The results showed that age and year of study are significant determinants of healthy lifestyle of students of tertiary institutions in Abia North Senatorial District. The authors recommended among others that university health services, counseling centres, and student affairs departments should tailor health programes based on significant determinants, such as age, and year of study for students of tertiary institutions, especially those aged 20 years and above and those in higher levels of study by developing targeted interventions for different age groups and academic levels, and motivate students through incentives and recognition of healthy lifestyle achievements..

Keywords: Socio-demographic factors, Determinants, Healthy lifestyle, Tertiary institution students

Introduction

Healthy lifestyle is considered an important means to reduce the burden of diseases globally. According to the Centre for Disease Control and Prevention (CDC, 2021), the spread of physical inactivity and poor nutrition, alongside other unhealthy lifestyle have fuelled the non-communicable disease (NCD) crisis that kills 15 million people prematurely including adolescents and young adults.

Many health problems as a result of lifestyle are prevalent across Africa. Africa's adult population faces a malnutrition burden with an average of 10.0 per cent of adult women (aged 18 and over) live with diabetes, compared to 9.8 per cent of men, meanwhile, 20.8 per cent of women and 9.2 per cent of men live with obesity (Global Nutrition Report, 2022a). In Nigeria, unhealthy lifestyle continues to be an issue of major concern. According to Global Nutrition Report (2022b), 15.7 per cent of adult (aged 18 years and over) women and 5.9 per cent of adult men are living with obesity in Nigeria. Adeloye et al. (2022) reported that the prevalence of physically inactive persons in Nigeria was 52.0 per cent, with prevalence in women higher at 55.8 per cent compared to men at 49.3 per cent. In Abia State, studies have reported an associated rise in the burden of chronic diseases and the lifestyle adopted (Amuzie et al., 2022).

Lifestyle is described as daily activities resulting from individual values, orientations, knowledge, and norms defined by the broader cultural, social and economic context, and could

be healthy or unhealthy (Onge & Krueger, 2017). Unhealthy lifestyle refers to actions or habits that negatively impact an individual's health and well-being, such as smoking, excessive alcohol consumption, poor diet, and lack of physical activity (WHO, 2022b). However, this study is focused on healthy lifestyle because they are crucial for preventing chronic diseases, improving overall well-being, and enhancing the quality of life.

Healthy lifestyle is divided into different dimensions by different authors. Walker et al. (1987) grouped healthy lifestyle into six dimensions which include: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management. Health responsibility involves an active sense of accountability for one's own well-being, which includes paying attention to one's own health, educating oneself about health, and exercising informed consumerism when seeking professional assistance. Physical activity encompasses all activities, at any intensity, performed during any time of the day or night (Pedišić, 2014; Piggin, 2020). Both moderate- and vigorous-intensity physical activity improve health.

Nutrition is a critical part of health and development. Better nutrition is related to improved health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity (WHO, 2022a). Sasson (2022) defined spiritual growth as an inner process of removing obsolete ideas and habits, wrong concepts, and erroneous beliefs and ideas about life. It is a process of widening the horizons of consciousness, and understanding some inner truths. According to the Institute of Transformational Nutrition (2022), spiritual growth is the process of developing self-identity, nurturing meaningful relationships with others and or with a higher power, communing with nature, and recognizing transcendence and unity. Ye and Ye (2020) defined interpersonal relationship as the interaction or association between two or more people in the society.

Stress is an automatic physical, mental and emotional response to a challenging event which produces numerous physical and mental symptoms which vary according to each individual's situational factors (American Psychological association [APA], 2019). Stress management approaches include: learning skills such as problem-solving, prioritizing tasks and time management; enhancing one's ability to cope with adversity; practicing relaxation techniques such as deep breathing, yoga, meditation, tai chi, exercise and prayer; improving personal relationships and others (Davis, 2023). Stress affects students of tertiary institutions greatly.

Students of tertiary institutions are persons studying at a university or other place of higher education, such as: polytechnics, colleges of education, schools of health among others. These students are mostly found under the age brackets of 16-30 years depending on when they choose to attend the higher institutions for further studies. Lesińska-Sawicka et al. (2021) opined that by starting their studies, young people increase their independence, forcing them to make decisions about their lifestyle, including those related to their health such as nutrition, physical activity, relationships, stress management and others. In this study, the factors that are associated with healthy lifestyle are referred to as determinants; which are the factors that decisively affect the nature or outcome of something. At every stage of life, health behaviour is determined by complex interactions between social and economic factors, the physical environment and individual behaviour (Zhou et al., 2022).

Many socio-demographic factors have been found as determinants of healthy lifestyle among students. These factors include: age, gender, year of study, and residence type. Aygar et al. (2019) found age to be related to health-promoting behaviours among adults living in Eskişehir Osmangazi University Education and Research Area. Mehri et al. (2016) found a significant difference in physical activity dimension of healthy lifestyle and gender among university

students in Sabzevar, Iran. Kurt (2015) reported that there was a significant difference in the health promoting lifestyle between first year and fourth year students. Bergier et al. (2016) found that place of residence positively influenced physical activity among Ukrainian students from medium-size towns and rural areas, compared to their contemporaries from small towns and large cities.

Regrettably, the transfer into a new environment may alternate the usual habits and cause major fluctuations in lifestyle. Also, the conditions of the institutions and campuses in the study area appear to be poor, with problems of accommodation, overcrowded lecture halls, unavailable learning materials, irregular electricity, poor transport facilities and poor health facilities that do not make this transition any easier for the students. Hence, students in Abia North Senatorial District seem to be vulnerable to several stressful factors including inability to organize time, stress of examination and deadlines, irregular sleeping patterns, new peer's relationships, and inability to acclimatise to the new surroundings. These factors may result in a decreased level of physical activity and increased consumption of fast food that may lead to changes in body weight. The exposure to these changes in lifestyle may influence the well-being of the students and overall health.

Although there are studies on healthy lifestyle, no study identified socio-demographics as determinants of healthy lifestyle among tertiary institution students. Also, none of the reviewed similar studies was carried out in the same location as this study. Additionally, there is an obvious scarcity of Nigerian studies investigating the determinants of healthy lifestyle. Hence, this study investigated the socio-demographic determinants of healthy lifestyle among students of tertiary institutions in Abia North Senatorial District, Abia State. Specifically, the study assessed the: relationship between healthy lifestyle and socio-demographic factors (age, gender, year of study, and residence type) among students of tertiary institutions in Abia North Senatorial District, Abia State. Nigeria. This study aims to fill the gap in literature by benefiting public health educators who may design gender appropriate health activities for students to improve their behaviours; school administrators in setting up structures, schedules, and activities which will stimulate students to actively participate in healthy lifestyle regardless of their year of study, residence among others.

Methods and Material

Study design and setting
This study employed the descriptive correlational design. According to Gall et al. (2007), correlational research refers to studies in which the purpose is to discover the direction and magnitude of the relationships between variables through the use of correlational statistics, and tells how effectively individuals' scores on one measure can be used to predict their scores on another measure. Also, it allows analysing how variables, either singly or in combination, affect the pattern of behaviours

The study was conducted between February and April, 2024 at the various tertiary institutions at Abia North Senatorial District, Abia State. Abia North Senatorial District is one of the three Senatorial Districts in Abia State, made up of five local government areas: Arochukwu, Bende, Isuikwuato, Ohafia and Umunneochi. Abia North Senatorial District has been inhabited for years by various ethnic groups, but it is predominantly inhabited by the Igbo people. Economically, Abia State is based around the production of crude oil and natural gas along with agriculture, mainly of yams, maize, taro, oil palm, and cassava. There are two government owned tertiary institutions in Abia North Senatorial District namely: Abia State University and Abia State College of Education (Technical), Arochukwu (ASCETA).

Participants
The study participants consisted of students in the two public tertiary institutions in Abia North Senatorial District. The population of students attending tertiary institutions in Abia North Senatorial District is 18,905 comprising 18,720 students in Abia State University and 185 students in Abia State College of Education (Technical), Arochukwu (ASCETA). Only students in public tertiary institutions were used for the study because private tertiary institutions in the study areas were not in session as at the time of this study, which made the researchers not to have access to their students

Sample and sampling procedure
The sample size for the study was 430 students of tertiary institutions in Abia North Senatorial District, Abia State. This was in line with the suggestion of Cohen et al. (2018), that when a population size is 10,000 and above at 95 per cent confidence level (5% interval), the sample size should be 370 or above. The sample size was increased to 430 in order to ensure greater representation of participants and make up for attrition (non-response) rate.

The proportional stratified random sampling technique was used to draw the sample for the study. The tertiary institutions in Abia North Senatorial District were stratified into two strata. The first stratum was Abia State University, with a population of 18,720 students and the second stratum was ASCETA with a population of 185 students. The proportional stratified random sampling technique was used to draw 430 students from the two strata. Specifically, 426 students were drawn from Abia State University and four students were drawn from ASCETA.

Material and measures
Following the participants' consent, the Participant Information Form (PIF) assessed the socio-demographic characteristics of the respondents on age, gender, year of study, and residence type. The appropriate response options were assigned to each item..The Health-Promoting Lifestyle Profile II (HPLP-II) questionnaire measured health-promoting lifestyle. The HPLP II was developed by Walker et al in 1987. The 52-item summated behaviour rating scale employs a 4-point response format (Never [1], Sometimes [2], Often [3], Routinely [4]) to measure the frequency of self-reported health-promoting behaviours in the domains of health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations and stress management. The alpha coefficient of internal consistency for the total scale was .943; alpha coefficients for the subscales ranged from .793 - .872.

In order to examine their face and content validity, the questionnaires were given to five experts on the subject, and an expert in methodology. After collecting the opinions of these experts, possible modifications were made. To assess the reliability (internal consistency), a trial test was performed on 20 students of tertiary institutions, and the Cronbach's alpha values were calculated, which yielded .901, and for the six subscales, it ranged from .447 – .765 (Health Responsibility = .712, Physical Activity = .616, Nutrition = .606, Spiritual Growth = .709, Interpersonal Relations = .447, and Stress Management = .765). The cut-off point for the calculations was 0.70.

Data collection procedure
In order to gain access to the respondents, an ethical clearance from Abia State Ministry of Health was presented to the Dean of Student Affairs of each of the tertiary institutions studied. The Dean in turn gave permission to the researchers and the research assistants to go ahead with administration of the questionnaires. Three research assistants were briefed on the procedures for the administration of questionnaire and collection of the completed copies from

the respondents. The researchers and the research assistants visited the schools and directly request participation from students. The researchers explained the objectives of the research to the participants and informed consent forms were given out to those who were willing to participate in the study. Copies of the instruments were administered directly to the 430 students who had provided verbal or written consent to participate in the study. Every respondent given the questionnaire was encouraged to complete and return on the spot. Out of the 430 questionnaires administered, 424 copies were returned, which gave a return rate of 98.6 per cent, and six copies were not returned. Out of the returned copies, two were not duly filled out. Only 422 questionnaires duly filled out were used for analyses.

Data Analysis
The returned questionnaires were properly cross-checked for completeness of responses. The information from duly filled out copies of the questionnaire were coded into the Statistical Package for Social Sciences (SPSS) version 25. Point biserial (rbp) correlation was used to analyse and answer the research questions. Using Jackson (2009) estimates for weak, moderate and strong correlation coefficients, ±.00 - .29 was interpreted as none (.00) to weak relationship (NR or WR), ±.30 - .59 was interpreted as moderate relationship (MR), and ±.60 - 1.00 was interpreted as strong relationship (SR). The null hypothesis was tested using independent samples t-test and One-way analysis of variance (ANOVA) at 0.05 level of significance (p≤.05).

Results
Table 1: Point-Biserial Correlation between Level of Healthy Lifestyle and Age among Students of Tertiary Institutions ($n = 422$)

S/n	Variables	1.	2.	3.	4.	5.	6	7	8
	Age	1.00							
	Health responsibility	.072	1.00						
	Physical activity	.126**	.550**	1.00					
	Nutrition	.114*	.523**	.465**	1.00				
	Spiritual growth	-.091	.336**	.305**	.300**	1.00			
	Interpersonal relations	-.052	.419**	.349**	.399**	.603**	1.00		
	Stress management	-.018	.501**	.427**	.470**	.582**	.488**	1.00	
	Total HPLP II score	.038	.765**	.716**	.713**	.706**	.729**	.776**	1.00

**p≤.001, *p≤.05
Key for interpretation:
±.00 - .29 = None (.00) to Weak Relationship; ±.30 - .59 = Moderate Relationship; ±.60 – 1.00 = Strong Relationship

Table 1 shows that there was a weak positive relationship between health responsibility (rbp = .072), physical activity (rbp = .126), nutrition (rbp = .114) and age of students of tertiary institutions in Abia North Senatorial District. Also, the table shows that there was a weak negative relationship between spiritual growth (rbp = -.091), interpersonal relations (rbp = -.052), stress management (rbp = -.018) and age of students of tertiary institutions in Abia North Senatorial District. The results imply that as age of the students increases, their engagement in health responsibility, physical activity, and healthy nutrition increases. However, increase in age of students implies reduced engagement in spiritual growth, interpersonal relations, and stress management. The total HPLP II score shows that there was a weak positive relationship between healthy lifestyle (rbp = .038) and age of students of tertiary institutions in Abia North

Senatorial District. The result implies that as age of the students increases, their engagement in healthy lifestyle increases.

Table 2: **Point-Biserial Correlation between Level of Healthy Lifestyle and Gender among Students of Tertiary Institutions (*n* = 422)**

S/n	Variables	1.	2.	3.	4.	5.	6	7	8
	Gender	1.00							
	Health responsibility	.080	1.00						
	Physical activity	-.078	.550**	1.00					
	Nutrition	.016	.523**	.465**	1.00				
	Spiritual growth	.023	.336**	.305**	.300**	1.00			
	Interpersonal relations	.032	.419**	.349**	.399**	.603**	1.00		
	Stress management	.062	.501**	.427**	.470**	.582**	.488**	1.00	
	Total HPLP II score	.028	.765**	.716**	.713**	.706**	.729**	.776**	1.00

**p≤.001, *p≤.05

Table 2 shows that there was a weak positive relationship between health responsibility (rbp = .072), nutrition (rbp = .016), spiritual growth (rbp = .023), interpersonal relations (rbp = .032), stress management (rbp = .062) and gender of students of tertiary institutions in Abia North Senatorial District. Also, the table shows that there was a weak negative relationship between physical activity (rbp = -.078) and gender of students of tertiary institutions in Abia North Senatorial District. The results imply that being a male or a female determines students' engagement in health responsibility, healthy nutrition, spiritual growth, interpersonal relations, and stress management. However, being a male or a female does not determine students' engagement in physical activity. The total HPLP II score shows that there was a weak positive relationship between total healthy lifestyle (rbp = .028) and gender of students of tertiary institutions in Abia North Senatorial District. The result implies that being a male or a female determines students' engagement in healthy lifestyle.

Table 3**: Point-Biserial Correlation between Level of Healthy Lifestyle and Year of Study among Students of Tertiary Institutions (*n* = 422)**

S/n	Variables	1.	2.	3.	4.	5.	6	7	8
	Year of Study	1.00							
	Health responsibility	.036	1.00						
	Physical activity	.116*	.550**	1.00					
	Nutrition	-.001	.523**	.465**	1.00				
	Spiritual growth	-.074	.336**	.305**	.300**	1.00			
	Interpersonal relations	-.058	.419**	.349**	.399**	.603**	1.00		
	Stress management	.004	.501**	.427**	.470**	.582**	.488**	1.00	
	Total HPLP II score	.008	.765**	.716**	.713**	.706**	.729**	.776**	1.00

**p≤.001, *p≤.05

Table 3 shows that there was a weak positive relationship between health responsibility (rbp = .080), physical activity (rbp = .116), stress management (rbp = .004) and year of study of students of tertiary institutions in Abia North Senatorial District. Also, the table shows that

there was a weak negative relationship between nutrition (rbp = -.001), spiritual growth (rbp = -..074), interpersonal relations (rbp = -.058) and year of study of students of tertiary institutions in Abia North Senatorial District. The results imply that as year/level of study of the students increases, their engagement in health responsibility, physical activity, and stress management increases. However, increase in year/level of study of students implies reduced engagement in healthy nutrition, spiritual growth, and interpersonal relations. The total HPLP II score shows that there was a weak positive relationship between total healthy lifestyle (rbp = .008) and year of study of students of tertiary institutions in Abia North Senatorial District. The result implies that as year/level of study of the students increases, their engagement in healthy lifestyle increases.

Table 4: **Point-Biserial Correlation between Level of Healthy Lifestyle and Residence Type among Students of Tertiary Institutions (n = 422)**

S/n	Variables	1.	2.	3.	4.	5.	6	7	8
	Residence Type	1.00							
	Health responsibility	.017	1.00						
	Physical activity	.050	.550**	1.00					
	Nutrition	.042	.523**	.465**	1.00				
	Spiritual growth	.-.048	.336**	.305**	.300**	1.00			
	Interpersonal relations	.032	.419**	.349**	.399**	.603**	1.00		
	Stress management	-.066	.501**	.427**	.470**	.582**	.488**	1.00	
	Total HPLP II score	.007	.765**	.716**	.713**	.706**	.729**	.776**	1.00

**p≤.001, *p≤.05

Table 4 shows that there was a weak positive relationship between health responsibility (rbp = .017), physical activity (rbp = .050), nutrition (rbp = .042), interpersonal relations (rbp = -.032) and residence type of students of tertiary institutions in Abia North Senatorial District. Also, the table shows that there was a weak negative relationship between spiritual growth (rbp = -.048), stress management (rbp = -.066) and residence type of students of tertiary institutions in Abia North Senatorial District. The results imply that residence type of the students determines their engagement in health responsibility, physical activity, healthy nutrition, and interpersonal relations. However, residence type of the students does not determine their engagement in spiritual growth and stress management. The total HPLP II score shows that there was a weak positive relationship between healthy lifestyle (rbp = .007) and residence type of students of tertiary institutions in Abia North Senatorial District. The result implies that residence type of the students determines their engagement in healthy lifestyle.

Table 5**: t-test and ANOVA Distribution of Healthy Lifestyle Scores according to Age, Gender, Year of Study, and Residence Type among Students of Tertiary Institutions in Abia North Senatorial District (n = 422)**

Variable	Health responsibility	Physical activity	Nutrition	Spiritual growth	Interpersonal relations	Stress management	HPLP II total
Age							
<20 years	21.26 (4.427)	16.54(3.820)	20.19 (3.439)	26.95 (3.871)	23.46(3.301)	20.07(3.636)	128.5(14.97)
20years +	21.95 (4.109)	17.75(4.370)	21.16 (3.868)	26.11(4.132)	23.03(3.737)	19.93(3.502)	129.9(17.98)
T	-1.484	-2.606	-2.357	1.867	1.058	.365	-.777
P	.139	..009*	.019*	.063	.291	.715	..438
Gender							

Male	21.01 (4.707)	18.17(3.971)	20.77(3.848)	26.13(4.078)	22.89(4.094)	19.48 (3.439)	128.5(17.61)
Female	21.91 (4.082)	17.28(4.307)	20.93 (3.771)	26.37(4.081)	23.20(3.530)	20.07(3.550)	129.8(17.17)
T	-1.650	1.608	-.319	-.464	-.655	-1.276	-.584
P	.100	.109	.750	.643	.513	.203	.560
Year of Study							
100 level	21.45 (4.248)	16.78(4.204)	20.84 (3.708)	26.82(3.989)	23.34(3.604)	20.02 (3.455)	129.3(16.45)
200 level	21.80 (4.167)	17.96(3.824)	20.64 (3.972)	25.00(3.767)	22.45(3.568)	19.33 (3.496)	127.2(18.01)
300 level	22.41 (4.010)	18.12(4.319)	21.31 (3.821)	26.65(3.660)	23.61(3.249)	20.38 (3.379)	132.5(16.40)
400 level	22.75 (4.025)	16.33(3.939)	21.33 (2.708)	25.83(2.552)	22.75(3.108)	20.25 (3.621)	129.3(12.72)
500 level	18.92 (4.192)	17.77(5.262)	20.00 (4.183)	24.08(7.285)	20.46(6.050)	18.31 (4.516)	119.5(24.70)
600 level	22.80 (5.404)	19.60(6.656)	19.00 (4.000)	26.80(8.167)	22.80(4.658)	21.20 (6.535)	132.2(31.53)
F	2.216	2.224	.787	3.262	2.581	1.555	1.921
P	..052	.051	.559	.007*	.026	.172	.090
Residence Type							
School hostel	21.66 (4.335)	17.04(4.459)	20.69 (3.874)	26.62(4.237)	23.20(3.668)	20.21 (3.631)	129.4(17.41)
Off campus lodge	21.83 (4.194)	17.28(4.324)	21.08 (3.487)	26.22(3.909)	23.98(3.178)	19.48 (3.092)	129.7(15.99)
Family home	21.82 (3.821)	17.04(4.459)	20.69 (3.874)	26.62(4.237)	23.20(3.668)	20.21 (3.631)	129.4(17.41)
F	.078	1.513	.445	.742	.1.846	.915	.013
P	.925	.221	.641	..477	.159	..401	.989

*Significant at p≤0.05

Table 5 shows that age and year of study are significant determinants of engagement in healthy lifestyle. Students aged 20 years and above had significantly higher scores than those less than 20 years in the areas of physical activity (t = -2.606, p = .009) and nutrition (t = -2.357, p = .019). On the contrary, the score for those aged 20 years and above on health responsibility was better than those less than 20 years, but with no significant difference. In addition, the average score of students less than 20 years was better than that for those aged 20 years and above in the areas of spiritual growth, interpersonal relations, stress management and overall HPLP II, but also with no significant difference. Students in 600 level had significantly higher scores than those in other years in the area of spiritual growth (F = 3.262, p = .007). On the contrary, the scores for those in 600 level on health responsibility, physical activity, and stress management were better than those in other years, but with no significant difference Further, gender and residence type are not significant determinants of healthy lifestyle among students of tertiary institutions in Abia North Senatorial District (p>.05).

Discussion

The study findings in Table 1 showed that there was a weak positive relationship between health responsibility, physical activity, nutrition, total HPLP II score and age of students of tertiary institutions in Abia North Senatorial District. Also, there was a weak negative relationship between spiritual growth, interpersonal relations, stress management, and age of students of tertiary institutions in Abia North Senatorial District. The corresponding hypothesis in Table 5 showed that age is a significant determinant of engagement in healthy lifestyle. Students aged 20 years and above had significantly higher scores than those less than 20 years in the areas of physical activity and nutrition. The findings are expected and not surprising to the researcher reason being that age can significantly impact the ability to maintain a healthy lifestyle due to changes in metabolism, physical abilities, and health considerations. The findings are consistent with Aygar et al. (2019) who found age to be related to health-promoting behaviours among adults living in Eskişehir Osmangazi University Education and Research

Area. Also, Fashafsheh et al. (2021) reported a significant relationship between the age of students and the sub-scales of stress management as well as physical activity among nursing students at Arab American University Palestine, Palestine. However, the study differed from the finding of Abbasi and Aghaamiri (2020) that there was no significant relationship between age and health promoting lifestyle among male nurses. The difference in findings could be attributed to different study population. In line with the health belief model, students' perception of susceptibility and benefits related to health responsibilities and physical activities increases slightly with age, while older students perceive fewer benefits in spiritual growth and interpersonal relations. Also, in line with TRA, older students may form intentions based on slightly more favourable attitudes and normative beliefs towards health responsibility and physical activity, while holding less favourable attitudes towards spiritual growth and interpersonal relations. Recognizing age as a significant determinant of engagement in healthy lifestyle, public health education initiatives could prioritize early intervention efforts to instil healthy habits and behaviours during formative developmental stages. Targeting adolescents and young adults with comprehensive health education programmes can help establish a strong foundation for lifelong health and well-being.

The results in Table 2 showed that there was a weak positive relationship between health responsibility, nutrition, spiritual growth, interpersonal relations, stress management and gender of students of tertiary institutions in Abia North Senatorial District. Also, there was a weak negative relationship between physical activity and gender of students of tertiary institutions in Abia North Senatorial District. The corresponding hypothesis in Table 5 showed that gender is not a significant determinant of healthy lifestyle among students of tertiary institutions in Abia North Senatorial District. The findings are expected and not surprising because lifestyle choices are often influenced more by individual preferences, socio-cultural factors, and personal circumstances rather than gender-specific traits. However, the findings differ with the findings of Mehri et al. (2016) who found a significant difference in physical activity dimension of healthy lifestyle and gender among university students in Sabzevar, Iran. Also, the findings are in contrast with Fashafsheh et al. (2021) who reported that gender and spiritual growth subscale differed significantly among nursing students at Arab American University Palestine, Palestine. Again, there is contrast between the findings and that of Alruwaili et al. (2023) who reported that gender was significantly associated with most of the six domains of health promotion behaviour among the Northern Saudi adolescent population. This difference in opinion may be attributed to the location and respondents who were used in conducting the various studies. In accordance with the HBM, students believe that gender has minimal impact on health responsibility, nutrition, and spiritual growth, indicating that perceived susceptibility and barriers are not significantly influenced by gender. The TRA can be used to explain the findings as students' attitudes and perceived social norms regarding health behaviours such as nutrition and physical activity show minimal variation between genders, leading to weak relationships with these behaviours.

The results in Table 3 showed that there was a weak positive relationship between health responsibility, physical activity, stress management and year of study of students of tertiary institutions in Abia North Senatorial District. Also, there was a weak negative relationship between nutrition, spiritual growth, interpersonal relations and year of study of students of tertiary institutions in Abia North Senatorial District. The corresponding hypothesis in Table 5 showed that year of study is a significant determinant of engagement in healthy lifestyle. Students in 600 level had significantly higher scores than those in other years in the area of spiritual growth. The findings were expected and not surprising. Reason being that factors such as increased workload, academic pressure, changes in living arrangements, and growing responsibilities, which may affect time management, stress levels, and access to resources for

maintaining a healthy lifestyle could significantly influence engagement in a healthy lifestyle among students of tertiary institutions. The findings are in line with the findings of Kurt (2015) who reported that there was a significant difference in the health promoting lifestyle between first year and fourth year students among nursing and midwifery students. However, the findings are not consistent with the findings of Al-Momani (2021) that no significant associations were found between lifestyle dimensions and academic year of medical students in Saudi Arabia. This difference in findings may be attributed to the location and respondents that were used in conducting the both studies. The findings agree with the HBM because students perceive an increase in benefits related to health responsibility and physical activity with advancing years of study, but also experience more barriers to maintaining nutrition and spiritual growth. Agree with the TRA, the findings show that advancing students may develop stronger intentions to engage in health-promoting behaviours due to improved attitudes towards health responsibility and perceived social support for physical activity, despite encountering barriers to nutrition and spiritual growth. Public health education would promote a culture of lifelong learning and continuous health promotion across the lifespan. Programmes can be tailored to emphasize the importance of ongoing education and skill-building to adapt to changing health needs and challenges at different stages of life, encouraging individuals to remain proactive and engaged in managing their health. Given that year of study is identified as a significant determinant of engagement in healthy lifestyle, public health education initiatives can leverage peer influence and social networks within academic communities to promote positive health behaviours. Peer-led interventions, social norms campaigns, and community-based initiatives can harness the power of social connections to encourage healthy lifestyle choices among students and young adults.

The results in Table 4 showed there was a weak positive relationship between health responsibility, physical activity, nutrition, interpersonal relations, and residence type of students of tertiary institutions in Abia North Senatorial District. Also, there was a weak negative relationship between spiritual growth, stress management and residence type of students of tertiary institutions in Abia North Senatorial District. The corresponding hypothesis in Table 5 showed that residence type is not significant determinants of healthy lifestyle among students of tertiary institutions in Abia North Senatorial District. The findings were expected and not surprising because students in various residence types can still have similar opportunities for physical activity, access to nutritious food, and engagement in health-promoting behaviours. The findings are in line with the findings of Mehri et al. (2016) who reported no significant difference in residence status and health promoting lifestyle among university students in Sabzevar, Iran. The findings are however in contrast with the Amiri et al. (2019) who found that place of residence was associated with the lifestyle of students from Shahroud University of Medical Sciences (Shahroud, Iran). Also, the findings are not in line with Gore et al. (2021) who found that residential status predicted nutrition sub-scale scores among freshmen in an international university in India. Such differences in the study results could be attributed to geographical location, as well as other social and economic factors. The findings in sustaining the HBM showed that students living in different residence types perceive similar levels of susceptibility and benefits regarding health responsibilities and physical activity, but face varying barriers to spiritual growth and stress management. Also, in sustaining the TRA, the findings show that students' intentions to engage in health behaviours like physical activity and stress management are weakly influenced by their attitudes and perceived social norms related to their residence type.

Strengths of this study include using both male and female students of tertiary institutions as participants. Our findings can be used to initiate an intervention programme for protecting and improving health of tertiary institution students in Abia State and beyond. The limitations of

the study include that reliance on self-reported data can introduce biases, such as recall bias or social desirability bias. Participants may not accurately remember their past behaviours or may report what they believe is the socially acceptable response rather than their true actions. The cross-sectional nature of the study captures behaviours and perceptions at a single point in time. The study cannot account for changes in lifestyle behaviours over time, which might be influenced by academic workload, seasonal variations, or life events. Future studies should explore longitudinal designs to examine changes in Healthy lifestyle of tertiary institution students over time.

Conclusion

The study results have shown that weak positive and negative relationships exist between the sub-scales of healthy lifestyle (health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, stress management) and socio-demographic factors (age, gender, year of study, and residence type). Age and year of study are important factors considered in engaging in healthy lifestyle. However, gender and residence type are not important factors considered in healthy lifestyle among students of tertiary institutions in Abia North Senatorial District. The findings highlight the complex interplay of demographic factors in shaping engagement in healthy lifestyle among students of tertiary institutions. By addressing these multifaceted determinants through targeted interventions, public health efforts can effectively promote healthy lifestyle and improve overall well-being in this population. However, University health services, counseling centres, and student affairs departments should tailor health programes based on significant determinants, such as age, and year of study for students of tertiary institutions, especially those aged 20 years and above and those in higher levels of study by developing targeted interventions for different age groups and academic levels. and motivate students through incentives and recognition of healthy lifestyle achievements.

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