Alcohol Use and Unhealthy Dietary Behaviors among University Students: A Cross-Sectional Survey in the Physiotherapy Department at Lusaka Apex Medical University

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ABSTRACT

Background: University life is a critical period for establishing lifelong health behaviors. This study investigated the prevalence and risk factors of alcohol use and unhealthy dietary behaviors among physiotherapy students at Lusaka Apex Medical University (LAMU).

Methods: A cross-sectional study was conducted among 139 physiotherapy students using a modified National College Health Risk Behavior Survey (NCHRBS) questionnaire. Data analysis was performed using SPSS version 16, with bivariate analysis and Pearson's Chi-square test determining associations at a 95% confidence level ($p < 0.05$).

Results: The study found that 33.3% of participants were at risk of alcohol-related health conditions, while 23% were at risk of diet-related health conditions. Male students were more likely to be at risk of alcohol-related conditions, whereas females were more likely to be at risk of diet-related conditions. A significant association was found between parental alcohol consumption and students' drinking behavior ($p = 0.002$), but not between peer drinking and students' alcohol use.

Conclusion: Parental influence is a significant factor in students' drinking behavior. Health promotion interventions targeting family influences and dietary education are recommended for university settings to mitigate these risks.

Keywords: Alcohol-related Health Conditions, Dietary Behaviors, Health Risk Behavior, Lifestyle Diseases, University Students.

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Introduction

University and college years are a pivotal time for developing health behaviors, as students make independent lifestyle choices that can have long-term implications. The World Health Organization (WHO) notes that habits formed during youth significantly influence the risk of non-communicable diseases (NCDs) later in life (WHO, 2023).

In sub-Saharan Africa, studies have shown that unhealthy lifestyles among students contribute to rising NCD risks (Munyaka et al., 2022; Ncube et al., 2023). Specifically, alcohol consumption and poor dietary behaviors are major concerns, linked to increased risks of liver disease, hypertension, obesity, diabetes, and cardiovascular disease (CDC, 2022).

Globally, NCDs account for 17.9 million deaths annually, with lifestyle factors such as poor diet and alcohol abuse being significant contributors (WHO, 2022). This study aimed to assess the prevalence and associated factors of alcohol use and unhealthy dietary behaviors among physiotherapy students at Lusaka Apex Medical University, providing crucial evidence for health promotion interventions in higher education settings.

Research Objectives

General Objective

The general objective of this study was to assess the prevalence of alcohol use, unhealthy dietary behaviors, and related factors among physiotherapy students at LAMU.

Specific Objectives

The specific objectives of this study were to;

1. Determine the proportions of students at risk of alcohol and diet-related health conditions at LAMU.
2. To compare alcohol use and unhealthy dietary behaviors between male and female physiotherapy students at LAMU.
3. To determine if family background is associated with alcohol use among physiotherapy students at LAMU.
4. To determine if peer influence is associated with alcohol use among physiotherapy students at LAMU.

Conceptual Framework for Alcohol Drinking Among Students

Alcohol consumption among students is influenced by social factors like peer and family influence, individual factors such as demographics and personal traits, environmental factors including accessibility and social acceptance of drinking, and academic factors like pressure, stress, and campus activities. These interconnected factors shape students' drinking behaviors as illustrated in figure 1.

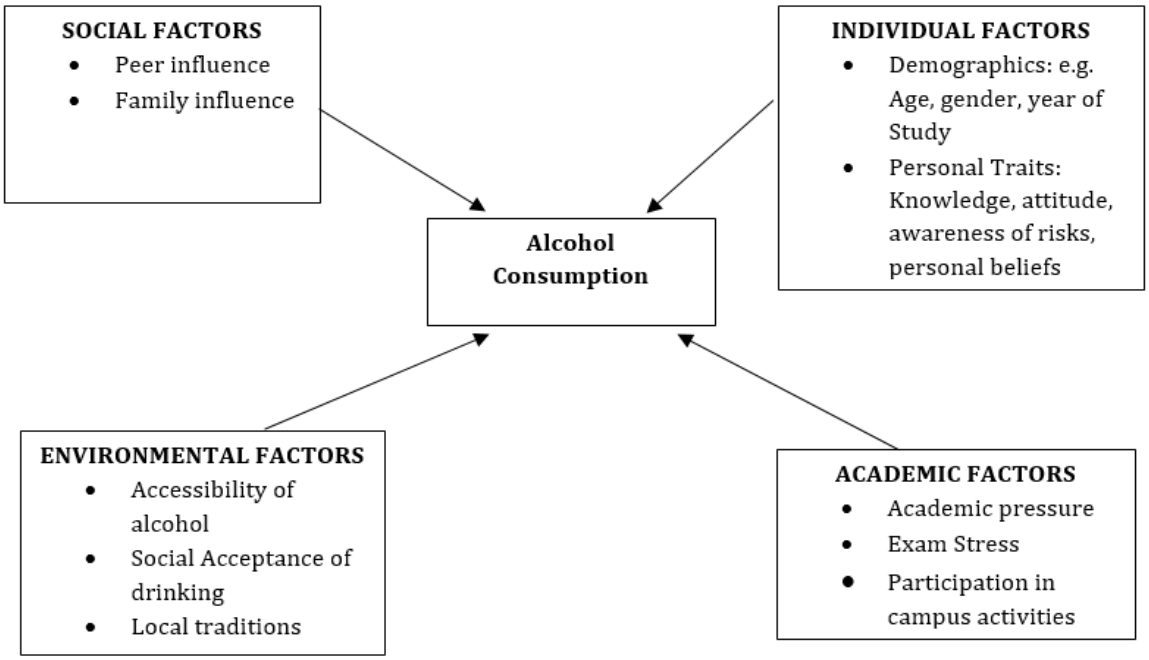

Figure 1: Conceptual Framework: Alcohol Drinking Among Students.

Conceptual Framework for Unhealthy Dietary Behavior among Students

This framework highlights several factors that affect students eating behavior. These factors are grouped in social environment, physical environment, macro environment, University and individual characteristics. The image below illustrates the details of these factors that influence eating behaviors among university students. Figure 2 illustrates how these factors are linked.

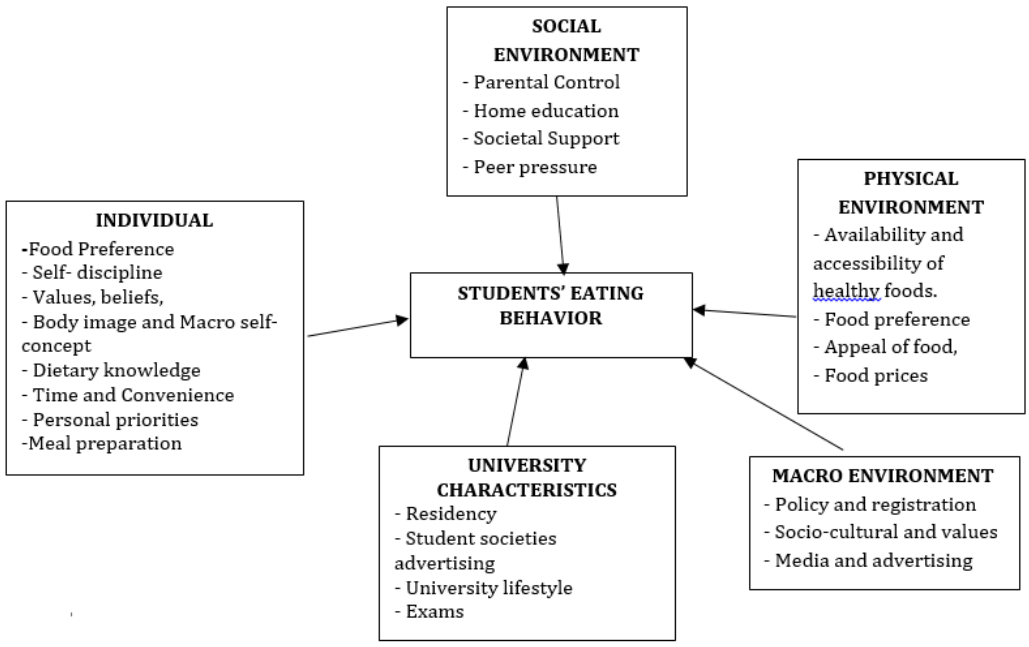

Figure 2: Conceptual Framework: Unhealthy Dietary Behavior among Students.
Source: Conceptualized by the authors (2025)

Methodology

Study Design

This study employed a quantitative, cross-sectional, and descriptive design to investigate the prevalence and risk factors of alcohol use and unhealthy dietary behaviors among physiotherapy students.

Study Population

The study population consisted of physiotherapy students at Lusaka Apex Medical University, selected based on convenience. The total student population was 260.

Sampling Design and Sample Size

Using a sample size calculation formula in Stata version 14, a minimum sample size of 128 students was determined, assuming a 95% confidence level, 80% power, and a proportion of 0.42. All students present during data collection and who gave their consent were included in the study.

Data Collection Techniques

A modified National College Health Risk Behavior Survey (NCHRBS) questionnaire was used to collect data. The NCHRBS is a questionnaire developed by the Centers for Disease Control and Prevention (CDC) to monitor health risk behaviors among college students in the United States. The survey aims to understand various aspects of student health. The questionnaire was tailored to suit local circumstances and collect required data. Table 1 shows key questions in the questionnaire and the cut-off points for determination of risk.

Data Analysis

Descriptive analysis was performed, presenting frequencies and proportions. Bivariate analysis using Pearson's Chi-squared test (or Fisher's exact test where assumptions were not met) assessed associations at a 95% confidence level ($p < 0.05$). Data was analyzed using SPSS version 16, utilizing CDC-designed key questions to determine overall risk for alcohol consumption and diet-related health conditions.

Ethics Considerations

This study was approved by the University of Lusaka Research Ethics Committee. Lusaka Apex Medical University also granted permission to conduct this research from its institution. Participation in this study was voluntary, and all participants were asked for their consent before being issued questionnaires. In order to maintain confidentiality, participants were not required to provide personal information or any other form of identity. For the purposes of avoiding victimization of respondents, anonymity was considered.

Priority Health Risk Category	NCHRBS Question Content	Cut point for Risk Determination
1. Alcohol Use	During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is within a couple of hours? #8	Had drunk **≥ 5** drinks of alcohol on at least one occasion on ≥ 1 of the 30 days preceding survey.
2. Poor Dietary Habits	Yesterday, how many times did you eat fruit? #11 Yesterday, how many times did you drink fruit juice? #12 Yesterday, how many times did you eat green salad? #13 Yesterday, how many times did you eat cooked vegetables? #14	Composite score Had eaten < 5 servings of fruit, fruit juice, green salad, and cooked vegetables during the day preceding survey.
	Yesterday, how many times did you eat hamburger, hot dogs, or sausage? #15 Yesterday, how many times did you eat French fries or potato chips? #16 Yesterday, how many times did you eat cookies, doughnuts, pie or cake? #17	Composite score Had eaten **≥ 3** servings of foods typically high in fat content

Source: CDC, 1997

Summary of Methods

This study employed a descriptive cross-sectional design, involving 139 physiotherapy students at Lusaka Apex Medical University (LAMU) out of a total population of 260, selected through convenience sampling. Data were collected using a modified National College Health Risk Behavior Survey (NCHRBS) questionnaire, assessing alcohol use, dietary behaviors, demographic characteristics, and family and peer influences. Data analysis was performed using SPSS version 16, with descriptive statistics and bivariate analysis using Pearson's Chi-square test ($p < 0.05$). The study received ethical approval, and informed consent was obtained from all participants.

Results

Demographic characteristics of respondents

The study involved 139 participants with a mean age of 21.64 years. The demographic breakdown revealed that 40.3% of participants were 23 years or older, while 3% were 18 years old. The gender distribution was nearly equal, with 47.5% females and 47.5% males. Most participants (67.6%) resided in off-campus housing, and the majority were first- and second-year students (64.8%). Additionally, 37.4% of participants lived

alone, while 30.2% lived with parents or guardians. Regarding family background, 66.7% of participants reported that their parents or guardians did not consume alcohol, while 33.3% reported that they did, potentially influencing participants' behaviors. Table 2 summarizes this information.

Characteristics	Frequency	Percent
Age (in years)		
18+	5	3.6
19	8	5.8
20	19	13.9
21	24	17.5
22	25	18.2
23 and above	56	40.9
Total	**137**	**100**
Sex		
Female	66	47.5
Male	66	47.5
Total	**137**	**100**
Place of residence		
College dormitory or residential hall	8	5.8
Academic village	5	3.6
Off-campus housing	95	68.3
Parent’s/guardian's home	20	14.4
Others	11	7.9
Total	**139**	**100**
Year of study		
1	41	29.7
2	49	35.5
3	13	9.4
4	22	15.9
5	10	7.2
6	3	2.2
Total	**138**	**100**
Currently residing with		
Alone	52	38
spouse	9	6.6
parent(s)/guardian(s)	42	30.7
other relatives	6	4.4
your children	3	2.2

others	25	18.2
Total	**137**	**100**
Characteristics	**Frequency**	**Percent**
Parents drink		
yes	44	33.3
no	88	66.7
Total	**132**	**100**
Friends drink		
yes	118	86.8
no	18	13.2
Total	**136**	**100**
Age at first drink		
I have never had a drink of alcohol	41	30.4
12 or younger	12	8.9
13 or 14	14	10.4
15 or 16	14	10.4
17 or 18	19	14.1
19 or 20	25	18.5
21 to 24	7	5.2
25 or older	3	2.2
Total	**135**	**100**

Proportion of Respondents at Risk of Alcohol-Related Health Conditions

The study assessed participants' risk of alcohol-related health conditions based on their drinking habits. According to the CDC guidelines, participants who had 5 or more drinks in a row on 3 or more days in the past 30 days were considered at risk. The results showed that 33.3% (46/139) of participants fell into this category, indicating they are at risk of suffering from alcohol-related health conditions.

Bivariate Analysis of Risk of Alcohol-Related Health Conditions and Other Explanatory Variables Using Pearson Test

Table 3 below shows the information on the bivariate analysis of the risks of alcohol-related health conditions and other independent variables. The study compared the risk of alcohol-related health conditions between male and female participants. Among those at risk, 52.2% were males, while 41.3% were females. This suggests that males are slightly more likely to be at risk of alcohol-related health conditions than females.

The study also tested two null hypotheses. The first hypothesis examined the relationship between family background and alcohol consumption. The results showed a statistically significant association between students having parents or guardians who drink alcohol and students' own drinking habits, with a p-value of 0.002. This means that we can reject the null hypothesis and conclude that there is a relationship between family background and alcohol consumption.

The second hypothesis investigated the relationship between having friends who drink alcohol and students' drinking habits. However, the results showed no statistically significant association, with a p-value of 0.254. Therefore, we

fail to reject the null hypothesis, suggesting that there is no significant relationship between having friends who drink alcohol and students' own drinking habits.

	Not at risk		At risk		P-Value
Characteristics	**n**	**%**	**n**	**%**	
Age (in years)					0.074
18	2	2.2	3	6.7	
19	8	8.8	0	0	
20	16	17.6	3	6.7	
21	17	18.7	7	15.6	
22	15	16.5	10	22.2	
23 and above	33	36.3	22	48.9	
Total	**91**	**100**	**45**	**100.1**	
Sex					0.528
Female	47	51.1	19	41.3	
Male	41	44.6	24	52.2	
Total	**92**	**100**	**46**	**100**	
Year of study					0.421
1	31	34.1	9	19.6	
2	33	36.3	16	34.8	
3	8	8.8	5	10.9	
4	12	13.2	10	21.7	
5	5	5.5	5	10.9	
6	2	2.2	1	2.2	
Total	**91**	**100**	**46**	**100**	
Living with					0.215
Alone	40	44.4	12	26.1	
spouse	6	6.7	3	6.5	
parent(s)/guardian(s)	27	30	14	30.4	
other relatives	3	3.3	3	6.5	
your children	1	1.1	2	4.3	
others	13	14.4	12	26.1	
Total	**90**	**100**	**46**	**100**	
Place of residence					0.78
College dormitory or residential hall	5	5.4	3	6.5	
Academic village	4	4.3	1	2.2	
Off-campus housing	61	66.3	33	71.7	
Parent's/guardian's home	13	14.1	7	15.2	
Others	9	9.8	2	4.3	

Total	**92**	**100**	**46**	**100**	
Parents Drink					**0.002**
yes	21	23.9	22	51.2	
No	67	76.1	21	48.8	
Total	**88**	**100**	**43**	**100**	
Friends drink					0.254
Yes	75	84.3	42	91.3	
No	14	15.7	4	8.7	
Total	**89**	**100**	**46**	**100**	

Table 3: Bivariate Analysis of Risk of Alcohol-Related Health Conditions and Other Explanatory Variables Using Pearson Chi Test.

Note: where Pearson Chi-square test assumptions were not satisfied, Fishers exact was used.

Bivariate Analysis of Risk of Diet-Related Health Conditions and Other Explanatory Variables Using Pearson Chi Test.

The study analyzed participants' diet, focusing on foods high in fat content. Participants were asked about their consumption of foods like sausages, chips, and cakes. A composite score of 3 or more indicated a risk of diet-related health conditions. The results showed that 23% of participants were at risk, while 77% were not. Comparing males and females, the study found that among those at risk, 53.1% were females and 40.6% were males. Refer to Table 4 for details.

The study analyzed participants' diet, focusing on foods high in fat content. Participants were asked about their consumption of foods like sausages, chips, and cakes. A composite score of 3 or more indicated a risk of diet-related health conditions. The results showed that 23% of participants were at risk, while 77% were not. Comparing males and females, the study found that among those at risk, 53.1% were females and 40.6% were males. Refer to Table 4 for details.

	Risk of Diet-related Health conditions				
	Not at risk		At risk		P-Value
Characteristics	**n**	**%**	**n**	**%**	
Age (in years)					0.307
18	5	4.8	0	0	
19	7	6.7	1	3.1	
20	11	10.5	8	25	
21	19	18.1	5	15.6	
22	19	18.1	6	18.8	
23 and above	44	41.9	12	37.5	
Total	**105**	**100**	**32**	**100**	
Sex					0.666
Female	49	45.8	17	53.1	
Male	53	49.5	13	40.6	

Missing	5	4.7	2	6.2	
Total	**107**	**100**	**32**	**100**	
Year of study					0.289
Year 1	33	31.1	8	25	
Year 2	39	36.8	10	31.2	
Year 3	12	11.3	1	3.1	
Year 4	14	13.2	8	25	
Year 5	6	5.7	4	12.5	
Year 6	2	1.9	1	3.1	
Total	**106**	**100**	**32**	**100**	
Student Living with					0.605
Alone	43	41	9	28.1	
spouse	7	6.7	2	6.2	
parent(s)/guardian(s)	32	30.5	10	31.2	
other relatives	5	4.8	1	3.1	
your children	2	1.9	1	3.1	
others	16	15.2	9	28.1	
Total	**105**	**100**	**32**	**100**	
Place of residence					0.178
College dormitory or residential hall	8	7.5	0	0	
Academic village	4	3.7	1	3.1	
Off-campus housing	75	70.1	20	62.5	
Parent's/guardian's home	14	13.1	6	18.8	
Others	6	5.6	5	15.6	
Total	**107**	**100**	**32**	**100**	

Note: where Pearson Chi square test assumptions were not satisfied, Fishers exact was used

Table 4: Bivariate Analysis of Risk of Diet-Related Health Conditions and Other Explanatory Variables Using Pearson Chi Squared Test.

Summary of Results

Among the 139 respondents, 47.5% were female and 47.5% male. The mean age was 21.6 years (SD ±2.1). Most students (68.3%) lived off-campus, while 14.4% stayed with parents or guardians. Approximately one-third (33.3%) were at risk of alcohol-related health conditions, with males more affected (52.2%) than females (41.3%). A significant association was found between parental alcohol use and student drinking (p=0.002). Conversely, no significant relationship was found between peer drinking and alcohol use (p=0.254). For diet-related risk, 23% of students were at risk, with higher proportions among females (53.1%) than males (40.6%).

Discussion

Introduction

The principal aim of this study was to determine the prevalence of alcohol use and unhealthy dietary behaviors among physiotherapy students

at Lusaka Apex Medical University (LAMU), and to identify associated risk factors—specifically parental/guardian alcohol use and peer influence. The study additionally estimated the proportion of students at risk for health conditions related to these behaviors.

The sample had roughly equal representation of males and females, enabling meaningful gender comparisons. The only participants aged 18 years or older were included, aligning the sample with Zambia's legal drinking age and making findings relevant to adult drinking behavior. Participants came from junior and senior classes and varied in duration at the institution. Most students lived off-campus, reflecting the institution's lack of on-campus hostels and an environment that may influence diet and alcohol use.

Key findings

A substantial portion of participants were classified as at risk of alcohol-related health conditions; males comprised a larger share of those at risk. This pattern is consistent with numerous studies that report higher alcohol consumption among male university students, though context-specific exceptions exist (Mungandi et al., 2022; Ntho et al., 2024). The study found a statistically significant positive association between parental/guardian drinking and participants' alcohol use. This corroborates recent evidence that parental alcohol supply and parental drinking patterns influence young adults' drinking behaviour (van der Kruk et al., 2023; Ou et al., 2024).

Although most participants reported friends who drink, peer drinking was not significantly associated with participants' own risk status in this sample. This contrasts with many prior findings where peer norms are strong predictors of student drinking; measurement differences or sample size/power limitations may explain the null result here (see Merino-Casquero et al., 2025 for a review of binge-drinking risk factors).

The dietary assessment focused on consumption of high-fat/processed foods. A notable proportion of students met the CDC-based criteria for being at risk of diet-related health conditions. Prior studies show that students living away from family tend to increase consumption of packaged and ready-to-eat high-fat foods (Awudi et al., 2024; Lupi et al., 2015), which may partly explain the pattern observed, given the high prevalence of off-campus residence in this sample.

This study observed a higher proportion of females than males categorized as at risk for diet-related health conditions, but this difference was not statistically significant. The literature shows mixed results on gender differences in diet-related risk, varying by food categories and cultural context (Awudi et al., 2024).

The study's findings have implications for health promotion interventions targeting university students, particularly in the Zambian context. The cultural and legal context of Zambia, including the legal drinking age and gendered social norms, may contribute to the higher risk of alcohol-related health conditions among male students. Family patterns of alcohol use emerged as a significant predictor, suggesting that family-inclusive education, parental engagement strategies, and public health messaging could be effective intervention targets. Additionally, universities should consider providing nutrition education and affordable healthy food options accessible to off-campus students, who may face practical challenges in maintaining a healthy diet due to limited time, cooking skills, and food access.

Conclusion

In conclusion, a meaningful proportion of physiotherapy students at LAMU are at risk for alcohol- and diet-related health conditions. Parental/guardian alcohol use was significantly associated with student alcohol consumption, while peer influence was not statistically associated in this sample. Dietary risk was common, particularly among students living off-campus, though relationships with living arrangement and gender were not statistically robust. These findings support targeted prevention strategies focusing on family influence

and nutritional support for students living independently.

Limitations

1. Measurement: The questionnaire was adapted from an instrument developed for another population; some items may not have been fully applicable or optimally worded for this student population.

2. Cross-sectional design: Causal inferences are not possible.

3. Narrow dietary assessment: Only high-fat/processed food consumption was measured; other important dietary domains (fruit/vegetable intake, sugar, salt, meal regularity, portion sizes) were not assessed.

4. Self-report and social desirability: Alcohol use and diet were self-reported and could be underreported, especially for socially sensitive behaviors.

5. Statistical Power: Some subgroup contrasts may have been underpowered, limiting detection of modest associations.

Declaration of Interest

The authors declare no competing interests.

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