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FACTORS ASSOCIATED WITH DIETARY PATTERNS AND BEHAVIORS AMONG STUDENTS IN LIRA UNIVERSITY. A CROSS-SECTIONAL STUDY.

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Abstract

Background
Having poor dietary patterns and behaviors exposes one to a great risk of acquiring some diseases and having some micronutrient deficiencies. University students are the most affected persons. The study aimed to find out the various factors that affect dietary patterns among students of Lira University.

Methodology
The study employed a descriptive cross-sectional survey to collect data from 200 students using structured questionnaires. Data was collected and analyzed to discern the relationship among the research variables. Descriptive statistical analysis was used to describe the data in univariate analysis and different proportions for categorical data were generated and presented in frequency tables.

Results
A total of 200 respondents participated in the study. Most of the participants 146(73.4%) were between the ages of 20-25 while 43(21.6%) were between the ages of 26-30. The majority of the respondents 178(89.0%) were not employed, 90(45.0%) respondents had an average financial situation, and most of the respondents 70(35.0%) were sometimes influenced by financial constraints regarding their dietary behaviors. About the availability of foods in the market, 113(56.5%) respondents found the foods to consume available to them in the markets. In terms of ease of finding food options, half of 100(50.0%) respondents found it somehow easy to find food options around 31(65.5%) skipped meals due to financial constraints. Respondents whose stress affected their eating pattern were more likely to have poor eating behaviors, cOR,2.584,95%CI,0.297-3.149, P=0.019, than respondents whose stress didn't affect their eating pattern.

Conclusion
The study financial constraints, limited food accessibility, and stress with poor dietary behaviors among Lira University students.

Recommendation
Establishment of food healthy team educators to offer guidance and health education on healthy feeding behaviors to the university students.

Keywords: *Dietary patterns and behaviors, micronutrients, dietary behaviors.*
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Background of the study
Dietary patterns refer to the quantities, proportions, variety, or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are habitually consumed.

University students are at a higher risk of making poor dietary choices that can lead to health problems due to limitations in dietary options that they have made as a result of various factors inclusive being; food prices, taste, family or peer eating habits, stressful events, food availability, and food accessibility. The transition to college is associated with significant changes in dietary options among university students (Abraham et al., 2018; Sogari et al., 2018; Tanton et al., 2015) and puts them at risk of making poor dietary choices that can lead to health problems (Brown et al., 2014).

Globally, 11 million deaths were attributed to dietary risk factors (low intake of fruits, high intake of sodium), 60% of university students consume fast foods at least once a week and 70% of the students exceed the recommended daily intake of sugar. Furthermore, 40% of students consume fewer than five servings of fruits and vegetables daily, according to WHO.

In Africa, 75% of university students in Nigeria consume high amounts of processed foods, (Oyetunde et al.,2018), and 60% of the students in South Africa exceed the recommended daily intake of saturated fats(Maimela et al.,2018). Additionally, 50% of students in Ghana consume fewer than three servings of fruits and vegetables daily.(Kibira et al.,(2019).

According to WFP in 2020, Approximately 60% of the population in the Sub-Saharan region consume less nutritious but inexpensive foods. Additionally, the

traditional diets rich in fruits and vegetables are being replaced by more processed foods, contributing to a rise in the burden of communicable diseases. 80% of the population consumes a diet high in starch and low in essential nutrients and 60% of the adults in Sub-Saharan Africa are overweight and obese, according to World Health Organization (2018)

In Uganda, approximately 30% of Ugandan adults have poor diet diversity, consuming diets low in essential nutrients, and there has been an increasing consumption of processed foods and sugary beverages, contributing to the growing burden of diet-related diseases.

Poor dietary patterns and behaviors are a great concern among university students in Uganda and it has a great impact on their health.

Many university students adopt unhealthy eating habits which include low consumption of nutrient-rich foods, inadequate intake of fruits, vegetables, etc.

According to a study carried out in 2022 by Brenda Mongeni at the University of Coastal Kenya about regularities in eating, 45.8% had healthy regularity in eating patterns.

The problem of poor and unhealthy dietary patterns and behaviors has a significant magnitude, and it affects a large proportion of university students, this has serious health consequences on people since it brings about micronutrient deficiencies, malnutrition, diabetes, obesity, tooth decay, high blood pressure, certain cancers, heart diseases, etc., it can also affect the academic performance of the students. Various factors influence student's dietary choices, inclusive economic factors, individual factors, etc.,

Despite government interventions in trying to address this problem (nutritional education, policies), the problem of dietary patterns and behaviors is still rampant, since less than 15% of households in Uganda are reported to be meeting daily requirements for foods like fruits and vegetables.

More so, few studies have been conducted around the issue concerning factors associated with dietary patterns and behaviors among University students in Uganda.

Therefore, the main purpose of this study is to determine the factors associated with dietary patterns and behaviors in order to come up with proper interventions to reduce the burden it causes.

Methodology

Study design

It was a cross-sectional study that took place at Lira University, located in Ayere village, Barapwo Parish, Lira Sub-County, Erute County in Lira District, it is located on approximately 500 acres of land, about 11 kilometers by road, northwest of downtown, Lira off of the Lira Kamdini Road. The study focused on factors associated with dietary patterns and behaviors., using data primarily collected from the stipulated study area. This particular study was conducted for approximately one year, including the time for proposal development, data collection, data analysis, and report writing.

SAMPLE SIZE DETERMINATION.

The sample size will be calculated using Krejecie and Morgan Table (1970), for a known population size. Lira University has a total number of 1378 enrolled students. From Krejecie and Morgan's Table, the sample size for this population is 297.

Considering the non-response rate of 10%, (10/100) *297= 29.7~30

Therefore 297 + 30=327

Hence a sample of 327 students shall be considered in this study.

SAMPLING TECHNIQUE

The sampling technique that I used was cluster sampling, where the population thus students from different faculties, and departments, were divided into clusters, based on relevant characteristics, where each of the students having a possibility of being chosen, were registered in terms of their names, then a random sample from the selected students basing on the list of their names were written down, and selected from each to represent the population.

Then a random sample of clusters was collected for data collection, within the selected cluster, all or a random subset of individuals were then included in the study.

ELIGIBILITY CRITERIA

INCLUSION CRITERIA.

The study included all the students around at the time of study and those willing to take part in the activity at Lira University from the different faculties.

EXCLUSION CRITERIA

This was considered for the individuals who expressed unwillingness to participate in the study and those who would not be present during the time of the activity.

DATA COLLECTION METHODS AND TOOLS.

QUANTITATIVE DATA COLLECTION METHODS.

Questionnaires consisting of close-ended questions adopted and modified by the Researcher were used. (Mwangi et al., 2014). The questionnaire consisted of closed-ended questions written in English. Each questionnaire consisted of three sections. The data was collected from study participants by using a structured, researcher-administered questionnaire developed from a thorough literature review. The study used a structured questionnaire which was developed based on a review of various literature.

DATA QUALITY CONTROL (RELIABILITY AND VALIDITY).

RELIABILITY.

A Cronbach test was performed on the data collected from the pretest and a reliability coefficient of r=0.8 and above was considered satisfactory. And, if not satisfactory, improvements to make it reliable were

considered by carrying out a pilot test with a small sample to assess how the revised scale would perform.

VALIDITY.

For validity, the tool that was used to collect data was reviewed by experts in the field and my supervisor. This tool was pretested among randomly selected nonstudent individuals from Barapwo village whose number was approximately 10% of the total population. Before conducting the study, research assistants who were fluent in English were trained to collect data using standard questionnaires.

DATA MANAGEMENT AND ANALYSIS.

The data collected was entered into an Excel spreadsheet, cleaned, coded, and analyzed using statistical software (SPSS version 20.0)

MEASUREMENT OF VARIABLES.

The questionnaire consisted of multiple-choice questions, in sections A, B, C, and D. The questionnaire comprised of a set of a set of dichotomous questions and contingency questions that were able to yield unambiguous answers and took less time. The questionnaire had four sections; (A, B, C and D)

Section A had 6 questions and sought information on demographic characteristics, like age sex, etc.

Section B had 7 Questions seeking information on socio-economic factors, like employment status, level of income, etc.

Section C had 7Questions seeking information on individual factors, like the factor of the level of stress, time, and convenience.

Section D had 16 Questions seeking information on environmental factors, like availability and accessibility to the food places.

Results

SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH DIETARY BEHAVIOURS AMONG LIRA UNIVERSITY STUDENTS

A total of 200 respondents participated in the study. Table 1 shows that most of the participants 146(73.4%) were between the ages of 20-25 while 43(21.6%) were between the ages of 26-30, Majority 0f the students 84(42.0%) were Anglicans, 37(18.5%), were from Management Sciences,77(38.5%), were from year one class, most of the respondents 183(91.5%) had weekday as a mode of attendance and majority 149(74.5%), were fresh students (level of education).

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TABLE 1 SHOWS A UNIVARIATE ANALYSIS ON SOCIO-DEMOGRAPHIC FACTORS.

Characteristics	Frequency	Percentage
Age		
20-25	146	73.4
26-30	43	21.6
31-40	10	5.0
Gender		
Male	117	58.5
Female	83	41.5
Religion		
Catholic	71	35.5
Anglican	84	42.0
Seventh Day Adventist	8	4.0
Muslim	12	6.0
Born again	23	11.5
Faculty		
Medicine	36	18.0
Public Health	35	17.5
Nursing and midwifery	12	6.0
Education	53	26.5
Management Science	37	18.5
Computing	27	13.5
Year of Study		
1	77	38.5
2	57	28.5
3	65	32.5
4	1	0.5
Mode of attendance		
Weekday	183	91.5
Weekend	17	8.5
Level of education		
Fresh student	149	74.5
Extensor	51	25.5

SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH DIETARY BEHAVIOURS AMONG LIRA UNIVERSITY STUDENTS.

According to the study, extensors had good dietary behavior compared to the fresh students' cOR, 1.942, 95% CI, 0.468-1.997, P=0.027, weekday students had poor dietary behaviors compared to the weekend students' cOR, 2.708, 95%CI, 0.249-3.016 P=0.048. Respondents aged 20-25 were more likely to have poor dietary behaviors cOR;0.226, 95%CI,0.052-0.991 P=0.049

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TABLE 2 SHOWS A BIVARIATE ANALYSIS OF SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH DIETARY BEHAVIOURS AMONG LIRA UNIVERSITY STUDENTS.

Characteristics	Dietary Behaviors		DF	cOR (CI:95)	P Value
	Good	Poor			
Age					
20-25	40(70.2)	106(74.6)	2	Ref	
26-30	11(19.3)	32(22.5)		0.226(0.052-0.991)	0.049*
31-40	6(10.0)	4(40.0)		0.206(0.042-1.008)	0.051
Gender					
Male	32(56.1)	85(59.4)	1	Ref	
Female	25(43.9)	58(40.6)		0.873(0.470-1.625)	0.669
Religion					
Catholic	18(32.1)	53(37.1)	4	Ref	
Anglican	29(51.8)	55(38.5)		0.324(0.183-0.565)	0.157
Seventh Day Adventist	2(3.6)	6(4.2)		0.218(0.0157-0.701)	0.464
Muslim	2(3.6)	10(7.0)		0.621(0.395-1.119)	0.511
Born Again	5(8.9)	18(12.6)		0.489(0.104-1.226)	0.284
Faculty					
Medicine	11(19.3)	25	5	Ref	
Public Health	7(12.3)	28		0.748(0.260-2.148)	0.590
Nursing	6(10.5)	6		0.425(0.136-1.327)	0.141
Education	13(22.8)	40		1.700(0.430-6.724)	0.449
Management	10(17.5)	27		0.553(0.203-1.503)	0.245
Computing	10(17.5)	17		0.630(0.217-1.828)	0.395
Year of Study					
1	24(42.1)	53(37.1)	3	Ref	
2	16(28.1)	41(28.7)		0.498(0.351-1.704)	0.805
3	16(28.1)	30(21.0)		0.139(0.102-0.214)	0.136
4	1(1.8)	19(13.3)		0.743(0.104-1.264)	0.183
Mode of attendance					
Weekday	51(89.5)	132(92.3)	1	Ref	
Weekend	6(10.5)	11(7.7)		2.708(0.249-3.016)	0.0488*
Level Of Education					
Fresh Student	42(73.7)	107(74.8)	1	Ref	
Extensor	15(26.3)	36(25.2)		1.942(0.468-1.997)	0.027*

DIETARY PATTERNS ASSOCIATED WITH DIETARY BEHAVIORS AMONG LIRA UNIVERSITY STUDENTS.

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TABLE 3 SHOWS A UNIVARIATE ANALYSIS OF DIETARY PATTERNS ASSOCIATED WITH DIETARY BEHAVIORS AMONG LIRA UNIVERSITY STUDENTS.

Categories	Frequency	Percentage
Number of meals taken in a day during weekends		
One	20	10.1
Two	63	31.7
Three	98	49.2
More than three	18	9.0
Breakfast before daily classes		
Yes	112	56.0
No	88	44.0
Average daily water intake		
1-3	84	42.0
4-6	93	46.5
6-8	23	11.5
More than 8 glasses		
Skipped a meal		
Yes	131	65.5
No	69	34.5
Consideration for food choices		
Cost of food	70	35.0
Favorite meals	35	17.5
Balanced diet	46	23.0
Foods available	36	18.0
Time available	13	6.5
Cereal consumption in a week		
None	36	18.0
Often	124	62.0
Everyday	40	20.0
Fruit consumption in a week		
None	59	29.5
Often	116	58.0
Everyday	25	12.5
Vegetable consumption		
None	39	19.5
Often	145	72.5
Everyday	16	8.0
Favorite beverage		
Soda	69	34.5
Coffee tea	56	28.0
Beer	29	14.5
Others	46	23.0
Fried food intake in a week		
1-2 times	96	48.0
3 or more times	104	52.0
Snacking frequency		
None	76	38.0
Often	98	49.0
Everyday	26	13.0
The main source of food		
Ready meals/takeaway	37	18.5
Own preparation/cooking	163	81.5
Breakfast consumption		
Everyday	73	36.5
Sometimes	110	55.0

None	17	8.5
Lunch consumption		
Everyday	114	57.0
Sometimes	82	41.0
None	4	2.0
Dinner consumption		
Everyday	93	46.7
Sometimes	77	38.7
None	29	14.6

Table 3 shows that 98(49.2%) respondents took three meals a day during weekends, and 112(56.0%) respondents had breakfast before daily classes.
Most of the respondents 93(46.5%) took 1-3 glasses of water daily, majority of the respondents 131(65.5%)had never skipped a meal.
In terms of consideration for food choices, most of the respondents 70(35.0%) considered the cost of foods when choosing what to eat, 124(62.0%) often consumed cereals in a week, and 145(72.5%) respondents reported to consume fruits often in a week. The majority of 69(34.5%) respondents consumed soda compared to other beverages.
A majority of the respondents 104(52.0%) reported consuming fried foods 3 or more times a week and most respondents 98(49.0%) often consumed snacks.
According to the source of food, 163(81.5) respondents prepared their own foods (own food preparation), and in terms of consumption, some 110(55.0%) respondents consumed breakfast sometimes, 114(57.0%) respondents consumed lunch every day, and 93(46.7%) respondents consumed dinner every day.
According to the study, respondents who consumed breakfast just sometimes were more likely to have poor dietary behaviors than those who consumed breakfast every day, cOR;11.810,95%CI,1.486-93.861, P=0.020. Respondents who took 1-3 glasses of water daily on average were more likely to have poor dietary behaviors than those who took 4-6 glasses of water daily on average cOR; 0.220,95%CI,0.084-0.578, P=0.002.

TABLE 4 SHOWS A BIVARIATE ANALYSIS OF DIETARY PATTERNS ASSOCIATED WITH DIETARY BEHAVIORS AMONG LIRA UNIVERSITY STUDENTS.

Categories	**Dietary behaviors**		**DF**	**cOR (CI:95)**	**P Value**
	Good	**Poor**			
Number of meals taken in a day during weekends					
One	1(1.8)	19(13.3)	3	Ref	
Two	11(19.6)	52(36.4)		0.033(0.004-0.309)	0.003*
Three	33(58.9)	65(45.5)		0.135(0.043-0.425)	0.001*
More than three	11(19.9)	7(4.9)		0.323(0.115-0.911)	0.033*
Breakfast before daily classes					
Yes	48(84.2)	64(44.8)	1	Ref	
No	9(15.8)	79(55.2)		6.583(3.004-14.427)	<0.001*
Average daily water intake					
1-3	18(31.6)	75(52.4)	2	Ref	
4-6	27(47.4)	57(39.9)		0.220(0.084-0.578)	0.002*
6-8	12(21.1)	11(7.7)		0.434(0.170-1.109)	0.081
Skip meals					
Yes	43(76.8)	117(81.8)	1	Ref	
No	13(23.2)	26(18.2)		0.435(0.034-0.059)	0.045
Consideration for food choices					
Cost of food	16(28.1)	54(37.8)	4	Ref	
Favorite meals	11(19.3)	24(16.8)		0.346(0.102-1.177)	0.089
Balanced diet	9(15.8)	37(25.9)		0.535(0.145-1.968)	0.346
Foods available	15(26.3)	21(14.7)		0.284(0.076-1.053)	0.060
Time available	6(10.5)	7(4.9)		0.833(0.233-2.985)	0.779
Cereal consumption in a week					

None	8(14.0)	28(19.6)	2	Ref	
Often	410(71.9)	83(58.0)		1.143(0.379-3.445)	0.813
Everyday	8(14.0)	32(22.4)		1.976(0.836-4.671)	0.121
Fruit consumption in a week					
None	13(22.8)	46(32.2)	2	Ref	
Often	35(61.4)	81(56.6)		0.502(0.181-1.397)	0.187
Everyday	9(15.8)	16(11.2)		0.768(0.310-1.904)	0.569
Vegetable consumption in a week					
None	9(15.8)	30(21.0)	2	Ref	
Often	43(75.4)	102(71.3)		0.660(0.181-2.405)	0.529
Everyday	5(8.8)	11(7.7)		0.927(0.304-2.830)	0.895
Favorite beverage					
Soda	18(31.6)	51(35.7)	3	Ref	
Coffee tea	20(35.1)	36(25.2)		1.000(0.428-2.339)	1.000
Beer	7(12.3)	22(15.4)		1.574(0.669-3.703)	0.299
Others	12(21.1)	34(23.8)		0.902(0.308-2.643)	0.850
Fried food intake in a week					
1-2 times	26(45.6)	70(49.0)	1	Ref	
3 or more times	31(54.4)	73(51.0)		0.875(0.473-1.619)	0.670
Snacking frequency					
None	13(22.8)	63(444.1)	2	Ref	
Often	37(64.9)	61(42.7)		0.560(0.196-1.604)	0.280
Everyday	7(12.3)	19(13.3)		1.646(0.632-4.291)	0.308
The main source of food					
Ready meals/takeaway	11(19.3)	26(18.2)	1	Ref	
Own preparation/cooking	46(80.7)	117(81.8)		1.076(0.492-2.355)	0.854
Breakfast consumption					
Everyday	31(54,4)	42(29.4)	2	Ref	
Sometimes	25(43.9)	85(59.4)		11.810(1.486-93.861)	0.020*
None	1(1.8)	16(11.2)		4.706(0.594-37.253)	0.142
Lunch consumption					
Everyday	39(68.4)	75(52.4)	2	Ref	
Sometimes	17(29.8)	65(45.5)		1.560(0.157-15.498)	0.704
None	1(1.8)	3(2.1)		0.785(0.77-8.026)	0.838
Dinner consumption					
Everyday	33(58.9)	60(42.0)	2	Ref	
Sometimes	18(32.1)	59(41.3)		2.640(0.921-7.567)	0.071
None	5(8.9)	24(16.8)		1.464(0.488-4.393)	0.496

SOCIO-ECONOMIC FACTORS ASSOCIATED WITH DIETARY BEHAVIORS AMONG LIRA UNIVERSITY STUDENTS.

The majority of the respondents 178(89.0%) were not employed, 90(45.0%) respondents had an average financial situation, and most of the respondents 70(35.0%) were sometimes influenced by financial constraints regarding their dietary behaviors. About the availability of foods in the market, 113(56.5%) respondents found the foods to consume available to them in the markets. In terms of ease of finding food options, half of 100(50.0%) respondents found it somehow easy to find food options around and most 131(65.5%) skipped meals due to financial constraints.

TABLE 5 SHOWS A UNIVARIATE ANALYSIS OF SOCIOECONOMIC FACTORS ASSOCIATED WITH DIETARY BEHAVIORS AMONG LIRA UNIVERSITY STUDENTS.

Categories	Frequency	Percentage
Employment status		
Yes	22	11.0
No	178	89.0
Financial situation		
Comfortable	23	11.5
Average	90	45.0
Very comfortable	4	2.0
Strained	50	25.0
Very strained	33	16.5
Financial Constraints Influence		
Always	54	27.0
Often	49	24.5
Sometimes	70	35.0
Rarely	24	12.0
Never	3	1.5
Availability of foods in the market		
Yes	113	56.5
No	87	43.5
Ease to find food options.		
Very easy	27	13.5
Somehow easy	100	50.0
Not easy	73	36.5
Skipped meals due to financial constraints		
Yes	131	65.5
No	69	34.5

TABLE 6 SHOWS A BIVARIATE ANALYSIS OF SOCIOECONOMIC FACTORS ASSOCIATED WITH DIETARY BEHAVIORS AMONG LIRA UNIVERSITY STUDENTS.

Categories	Dietary Behaviors		DF	cOR(95 CI)	P value
	Good	Poor			
Employment status					
Yes	9(15.8)	13(9.1)	1	Ref	
No	48(84.2)	130(90.9)		1.875(0.753-0.4668)	0.177
Financial situation					
Comfortable	11(19.3)	12(8.4)	4	Ref	
Average	25(43.9)	65(45.5)		2.865(0.915-8.971)	0.071
Very comfortable	2(3.5)	2(1.4)		1.202(0.479-3.016)	0.695
Strained	11(19.3)	39(27.3)		3.125(0.377-25.918)	0.291
Very strained	8(14.0)	25(17.5)		0.881(0.312-2.494)	0.812
Financial constraints influence					
Always	13(22.8)	41(28.7)	4	Ref	
Often	13(22.8)	36(25.2)		0.152(0.110-0.218)	0.264
Sometimes	21(36.8)	49(34.3)		0.835(0.263-0.985)	0.585
Rarely	10(17.5)	14(9.8)		0.292(0.183-0.351)	0.156
Never	0(0.0)	3(2.1)		1.115(0.219-1.207)	0.845
Availability of foods in the market					
Yes	32(56.1)	81(56.6)	1	Ref	
No	25(43.9)	62(43.4)		o.980(0.528-1.819)	0.948
Ease to find food options.					
Very easy	10(17.5)	17(11.9)	2	Ref	
Somehow easy	37(64.9)	63(44.1)		3.706(1.327-10.352)	0.012*
Not easy	10(17.5)	63(44.1)		3.700(1.694-8.079)	0.001*
Skipped meals due to financial constraints					
Yes	31(54.4)	100(69.9)	1	Ref	
No	26(45.6)	43(30.1)		0.513(0.273-0.965)	0.038*

INDIVIDUAL FACTORS ASSOCIATED WITH DIETARY BEHAVIOURS AMONG UNIVERSITY STUDENTS.

The study examined the relationship between individual factors and dietary behaviors among university students in Lira. According to the study, respondents whose stress affected their eating pattern were more likely to have poor eating behaviors, cOR,2.584,95%CI,0.297-3.149, P=0.019, than respondents whose stress didn't affect their eating pattern.

TABLE 7 SHOWS BIVARIATE ANALYSIS OF INDIVIDUAL FACTORS ASSOCIATED WITH DIETARY BEHAVIOURS AMONG UNIVERSITY STUDENTS.

Characteristics	Dietary behaviors		DF	cOR(95 CI)	P Value
Knowledge about healthy feeding	**Good**	**Poor**			
Yes	37(64.9)	78(54.5)	1	Ref	
No	2035.1)	65(45.5)		1.542(0.816-2.911)	0.182
Read Information related to nutrition.					
Yes	40(70.2)	88(61.5)	1	Ref	
No	17(29.8)	55(38.5)		1.471(0.760-2.845)	0.252
Prefer to eat					
Traditional foods	41(71.9)	107(74.8)	3	Ref	
Fast foods	11(19.3)	23(16.1)		0.894(0.221-3.624)	0.875
Exotic foods	2(3.5)	6(4.2)		1.116(0.241-5.161)	0.888
Snacks	3(5.3)	7(4.9)		0.778(0.096-6.322)	0.814
Body image influence on food choices					
Yes	34(59.6)	88(61.5)	1	Ref	
No	23(40.4)	55(38.5)		0.924(0.493-1.730)	0.805
Eat according to how your peers are eating.					
Always	5(8.8)	13(9.1)	2	Ref	
Sometimes	27(47.4)	7149.7)		0.908(0.292-2.817)	0.867
Rarely	25(43.9)	59(41.3)		0.897(0.471-1.709)	0.742
Experience stress related to your workload					
Daily	11(19.3)	42(29.4)	2	Ref	
Weekly	22(38.6)	40(28.0)		0.666(0.295-1.503)	0.328
Rarely	24(42.1)	61(42.7)		1.398(0.692-2.822)	0.350
Stress effect on the eating pattern					
Yes	37(66.1)	110(76.9)	1	Ref	
No	19(33.9)	33(23.1)		2.584(0.297-3.149)	0.019*

Discussion

SOCIO-DEMOGRAPHIC FACTORS

The study examined the relationship between socio-demographic factors and dietary behaviors among university students at Lira University. In this study, the results showed that respondents aged 20-25 years were likely to have poor dietary behaviors compared to older students. This finding is consistent with a previous study conducted among university students in the US which showed that older adults tend to have healthier eating patterns compared to younger adults. (Lavelle et al., 2019). About gender, female students were found to have good eating behaviors compared to male students, this is in line with a study conducted among students in Australia which found that females tend to have healthier eating habits than men. (Papadakos et al., 2018).

Education level; Students in their final years of study were more likely to consume a balanced diet compared to those in their first year of study. This study is consistent with previous studies that have shown that education level is positively associated with healthy dietary patterns. (Kamhius, C.B.M., et al., 2018).

DIETARY PATTERNS

According to the study, respondents who took breakfast daily were found to be 56% and were more likely to have good dietary behaviors (cOR,6.583,95%CI,3.004-14.427, P=0.001) while those who didn't consume breakfast daily were found to be 44%. This is consistent with a study that was carried out among college students in the US which found that 58% of the students consumed breakfast daily. (Larson et al., 2019). Students who consumed breakfast daily had a higher dietary

score($p<0.01$) and were more likely to have a higher intake of essential nutrients and have good eating behaviors compared to those who didn't take breakfast daily ($p<0.05$).

Average daily water intake; The study found out that the average daily water intake among university students was; 1-3 glasses, 4-6 glasses, and 6-8 glasses, this is consistent with a study conducted among university students in Australia which found that the average daily water intake was 5.5 liters per day (Rangan et al., 2018). Students who consumed more water per day had a high dietary diversity score ($p<0.01$) and were more likely to have a higher intake of essential nutrients($p<0.05$) compared to those who consumed less water per day.

In terms of dietary behaviors, the present study found that students who skipped meals were more likely to engage in unhealthy behaviors (cOR,0.435,95%CI,0.034-0.059, P=0.045) such as consuming fast foods and sugary snacks The high prevalence of meal skipping among university students is consistent with previous research (Wang et al., 2020), which highlights the need for students to prioritize student nutrition and affordable healthy food options. In addition, this study is consistent with previous research on dietary habits and nutrient intake among university students in the UK which has found that skipping meals can lead to poor dietary habits. (Cooke et al., 2019).

SOCIO-ECONOMIC FACTORS

The study found that students who reported that finding food options was not easy were 36.5% and were more likely to have poor eating behaviors (cOR,3.700,95%CI,1.694-8.079, P=0.001) due to inadequacies in accessibility to a variety of different nutritious foods, in contrast to those who reported that finding food options was easy that was 13.5%. This disparity is consistent with previous research with previous research, which has shown that socioeconomic status is a significant predictor of food insecurity and limited access to healthy food options. (Stevenson et al.,2019). Our data shows that students were notably influenced by the availability of food and thus heavily inclined to have breakfast and lunch from food vendors on the campus premises as they are available during the day.

Food availability was frequently reported as a factor for choosing food and thus notably impacted the eating behavior as observed by a previous research study on university students in Bogot. (Duarte-Cuervo et al),

According to the study, socioeconomic factors significantly influenced dietary behaviors in terms of ease of finding food options. Students who reported to have skipped meals due to financial constraints were while those who didn't skip meals due to financial constraints were. Students who skipped meals due to financial constraints were likely to have a lower income.

INDIVIDUAL FACTORS
STRESS EFFECT ON EATING BEHAVIORS

According to the study, the results showed that respondents who reported that stress affected their eating patterns were more likely to have poor dietary behaviors (cOR,2.584,95%CI,0.297-3.149, P=0.019).

The study found that 73% of the respondents reported that stress affected their eating patterns while 26% reported no impact of stress on their eating patterns. This finding is consistent with previous research that has shown that stress can significantly influence dietary behaviors (Kessler et al., 2013), students who reported that stress affected their eating patterns were likely to overeat and have poor food choices. (Groesz et al.,2012), More stressful conditions led students to consume greater amounts of unhealthy processed food in and around the university campus as observed by a study in an Australian University (Papier et al.,)

Further consistent studies show that students who reported that stress affected their eating patterns were likely to engage in unhealthy dietary behaviors such as consuming fast foods. (Lavelle et al., 2019)

Conclusion

The study highlights the significant association between financial constraints, limited food accessibility, stress infrequent breakfast consumption, and inadequate hydration with poor dietary behaviors among Lira University students, thus presenting the need for a multifaceted approach in addressing the individual, socioeconomic, and dietary pattern factors to promote healthy dietary behaviors.

Recommendation

To the ministry of health

Develop and implement national policy; Create a comprehensive policy that promotes healthy dietary behaviors among university students, supports food security in universities, and encourages food vendors to offer nutritious meals.

Launch a national nutrition education program; Develop a program that raises awareness about the importance of healthy eating habits among university students, provides nutritional education, and promotes healthy dietary behaviors.

Support research on dietary behaviors and nutrition; Fund research that investigates factors influencing dietary behaviors among university students and inform policy and program development.

Collaborate with universities to promote healthy dietary behaviors. Work with universities to develop and implement health promotion programs, provide resources, and support healthy campus initiatives.

Establish nutrition standards for foods served in universities; Set guidelines for food vendors and cafeterias to ensure they offer healthy and nutritious food options.

To the University

Provide healthy food options in cafeterias and food courts, and provide a variety of nutritious food options

including fruits, vegetables, whole grains, and lean protein sources.

Offer nutrition education programs; Offer workshops, seminars, and one-on-one counseling to support students in making informed food choices.

Create a healthy campus environment: Promote a culture of healthy eating by displaying nutrition information, providing healthy vending machine options, and supporting student-led health initiatives.

Incorporate nutrition education into the curriculum of students under different faculties; Integrate nutrition education into existing courses or offer elective courses on nutrition and healthy eating.

Support student-led health and wellness initiatives; Encourage and resource student-led programs that promote healthy dietary behaviors and overall well-being.

To the students

Prioritize whole foods and variety in your diets; Focus on consuming whole grains, fruits, vegetables, lean protein sources, and healthy fats.

Limiting processed and fast-food consumption; Try to limit your intake of packaged snacks, sugary drinks, and fast foods.

Seek nutrition advice from qualified professionals; Consult with registered nutritionists and dieticians for personalized nutrition advice.

Stay informed about nutrition and healthy eating; Follow credible sources, read nutrition labels, and stay up to date on the latest nutrition research and guidelines.

Abbreviation

WHO World Health Organization
WFP World Food Programme
SPSS Statistical Package For The Social Sciences

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