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Health Practices and Nutrition Status of University Students during COVID-19 Pandemic Period

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Abstract

Background: Many students faced challenges while taking online classes at home during the COVID-19 pandemic. These challenges are in various forms but are no less impactful.

Objectives: This study explored the health practices and nutrition status of University Students during the COVID-19 pandemic.

Method: The research design was a co-relational non-probability convenience sampling procedure with a sample size of one hundred and ninety-eight (n=198) students from a private university. Google Forms served as a repository for the data collection, and data was then transferred into the Statistical Package for the Social Sciences (SPSS) version 22.0 for further analysis.

Results: Of the sampled respondents (n=198), the majority were females 183 (92%), were in the age category of 21-30, 104 (52.5%), resided in Manchester 60 (30.3%), were in the College of Allied Health and Nursing 155 (78.3%) and were second-year 129 (65.2%). The results showed a significant correlation between respondents' perception of their nutrition status, BMI, chronic diseases and their health practices, engagement in physical activities, and consumption of healthy foods during the COVID-19 pandemic.

Conclusion: During the COVID-19 pandemic, students' appetite increased; they were cooking food and eating more leftover food; sleeping fewer

hours per night; their physical activity levels declined, and some indicated weight gain during the lockdowns.

Keywords: Health practices, nutrition status, university students, COVID-19 pandemic.

Introduction

The Ministry of Health and Wellness reported the first COVID-19 case in Jamaica on March 9, 2020. Immediately following the announcement, face-to-face learning transitioned to online learning at the Northern Caribbean University. The new mode of learning resulted in the new challenge of confinement at home as part of the lockdown measures. Confinement increases sedentary behaviours that involve activities with very low energy expenditure, performed mainly in a sitting or supine position. Low physical activity levels, even for short periods, could negatively affect physical and mental health. The confinement at home resulted in an increase in the sedentary lifestyle of many students hence leading to them being physically inactive. Walking, moderate, vigorous, and total physical activity levels had reduced during the COVID-19 pandemic confinement in university students of different countries (Lopez-Valenciano et al., 2020). However, one study revealed that 79.6% of Malaysians and 77.6% of Indonesians were physically active during the confinement (Tan et al., 2021).

According to Ismail et al. (2020), the lockdown and online schooling increased homemade meals preparations. However, other students woke up, got onto their computers, and began working without thinking of eating (McKay, 2021). Students were more likely to increase or decrease their smoking during the COVID-19 pandemic, depending on circumstances (Carreras, et al, 2021; Rigotti, et al., 2021). Casagrande et al. (2020) noted that 57.1% of participants reported poor sleep quality, possibly due to anxiety levels from the stress of completing coursework efficiently amid the peak of the pandemic. The state of lockdown and confinement led to irregular eating patterns and frequent snacking, associated with higher caloric intake and increased risk of obesity. Furthermore, quarantine changes in dietary habits and lifestyle parameters can potentially impair one's nutritional status (Silverio et al., 2020). Cervantes et al. (2013) found that physical activity and cardiovascular risk factors among university students indicated that the prevalence of obesity was 15.3%, sedentariness 33.8%, hypercholesterolemia 8.16%, smoking habits 15.8%,alcohol consumption 12.1%, and body mass index (BMI) (23.5 ± 4 vs 22.7 ± 4) was more significant in advanced students ($p<0.001$).

Headeyet al.(2020) found a decrease in the consumption of high density nutrients due to the COVID- 19 pandemic and a decreased intake frequency of grains, fruits, vegetables, dairy, nuts, meat, and meat alternatives. Yun et al.(2018) did a study with similar findings, revealing low students' consumption of fruits and vegetables. Furthermore, Gallo et al. (2020) found an increase in caloric intake due to snacking during confinement.

Universities and individuals have the responsibility during the COVID-19 pandemic of making an effort to choose a healthy practice such as engaging in physical activities, making the right food choices, to ensurea well-maintained nutritional status. This study seeks to determine the healthy practices and nutritional status of university students during COVID-19 pandemic. Specifically, it seeks to answer the following questions:

1. What are the health practices of university students in terms of food preparation, smoking and sleeping patterns?
2. To what level are university students engaged in physical activities before and during the COVID- 19 pandemic?
3. How often are respondents consuming healthy foods during the COVID -19 pandemic?
4. How is the nutrition status, body mass index, and presence of chronic diseases of respondents during the COVID-19 pandemic?

Operational definition of terms

- **Nutrition status** is determined by weight gain during the COVID-19 pandemic as indicated by their body mass index.
- **Health practices** are whether university students cook food every day, eat leftovers, smoke, and drink alcohol and their sleeping pattern during the COVID-19 pandemic.
- **Physical activities** evaluate the kind of physical activities done by the university students before and during the COVID-19 pandemic and the frequencies of doing those.
- **Health conditions** are determined by the presence or absence of diabetes, hypertension, stress, obesity, depression, and anxiety (better known as No communicable Diseases (NCDs))
- **Food consumption patterns** are the food choices made by university students in terms of refined or unrefined carbohydrates; frequencies of drinking alcoholic beverages, fruit juices and soft drinks, junk food, meat, grains, and fruits and vegetables.
- **Body Mass Index** is the measurement of Weight in (kg) ÷ height^2 (m). US units: BMI = (weight (lb) ÷ height^2 (in)) * 703.

Below is the calculated BMI with the condition of each calculation.

BMI	Condition
Below 18.5	Underweight
18.5- 24.9	Normal Weight
25-29.9	Overweight
30 and higher	Obese

Theoretical Framework

This study used the Social Cognitive Theory as its theoretical framework, as presented in Bourne et al. (2021).

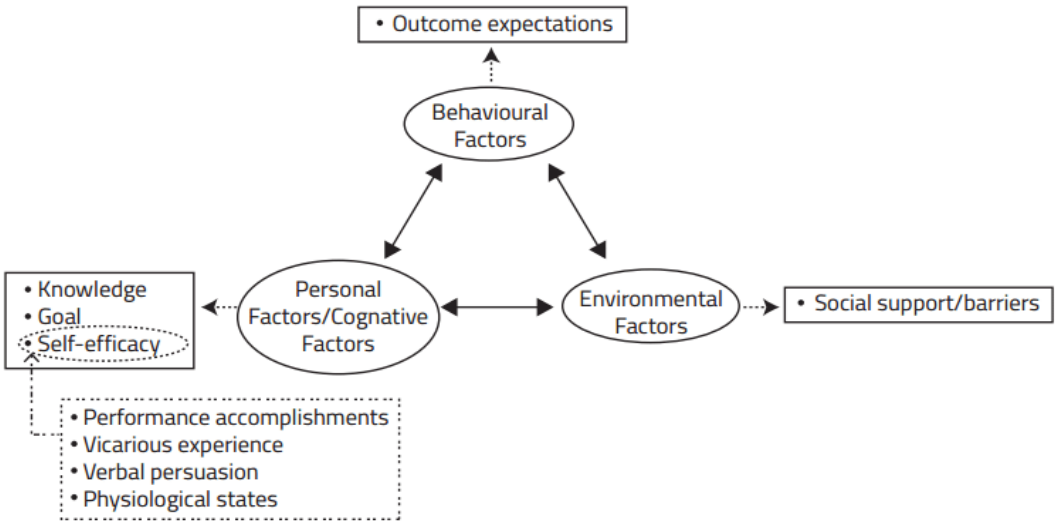

Figure 1.The elements of the Social Cognitive Theory

Figure 1 illustrates the Social Cognitive Theory, a learning theory developed by Albert Bandura in 1986 (Bandura, 1986, 2002). The Social Cognitive Theory gives a framework for understanding the active shaping and reform of people and the influence of their environment on the process of learning. The theory details observational learning and modelling processes and the effects of self-efficacy on the production of behaviour. Bandura claimed that perceptions of self-efficacy influences people's choices and beliefs in themselves, including the goals they choose to pursue and the efforts they put into them, how long they are willing to persevere in the presence of obstacles and setbacks, and the outcomes they expect (Vinney, 2019).

***H_0**: There is no significant correlation between respondents' perception of their nutrition status, BMI, chronic diseases and their health practices, engagement in physical activities, and consumption of healthy foods during the COVID-19 pandemic.*

***H_1**: There is a significant correlation between respondents' perception of their nutrition status, BMI, chronic diseases and their health practices, engagement in physical activities, and consumption of healthy foods during the COVID-19 pandemic.*

The Social Cognitive Theory applies to the context of this study because, during the COVID-19 pandemic, students have made lifestyle changes, including dietary practices, physical activities, sleeping patterns and food preparations to adjust to the impact of the COVID-19 pandemic on their lives. Consequently, through one's belief in their self-efficacy, one can observe these behaviours and make a change to impact their health positively.

Literature Review

Amid the COVID-19 pandemic social distancing mandates, universities across the nation closed their campuses including dormitories, forcing students to leave their campus community, friends, classes, and familiar routines. While many students were happy to reconnect with family, some returned to abusive households, others to empty refrigerators, and others to homelessness.

Coursework delivery quickly transitioned from face-to-face modalities to online modes for the remainder of the academic year. Much-anticipated culminating end-of-the-year events, including commencement ceremonies, were cancelled. Many students lost their on-campus or local jobs, and likewise, the severe disruption of job searches. All the while, college students experienced these sudden and unexpected changes while being physically separated from their familiar on-campus support systems. According to Abdull et al. (2012), "university students tend to have poor eating practices", and as such, poor nutritional status. Due to the COVID-19 pandemic, one can expect their eating practices to worsen, resulting in decreased nutritional status.

The COVID-19 pandemic lockdowns has negatively affected the nutritional status of students. A study conducted about physical activity levels across the COVID-19 outbreak in youngsters of Northwestern Lombardy revealed that physical activity was reduced for students because of lockdowns, which could alter their BMI (Tornaghi, 2021). However, a primary contributor to the obesity or overweight epidemic is physical activity, which could be promoted or delayed by various environmental factors.

Obesity is of primary concern globally and requires methods that combine individual interventions with environmental and societal changes to decrease obesity prevalence (Bluher, 2019). Chronic diseases such as cardiovascular disease is attributed to sedentary lifestyles and physical inactivity, and they constitute the leading risk factors in ill-health among people. Therefore, it is crucial to emphasise achieving cardio respiratory fitness through physical activity and healthy lifestyle practices (Lavie, 2019).

Maintaining an ideal BMI requires careful attention to lifestyle components such as physical inactivity, sedentary lifestyle practices and dietary habits since they are major contributors to obesity among adolescents and young adults (Kerkadi, 2019). The key factors contributing to obesity among college students are dietary habits, including dietary consumption patterns, frequency of meals, and skipping breakfast (Al-Rethaiaa, 2010). However, the COVID-19 lockdown policies disrupted the student's habits and lifestyles (Chirico, 2020). Poor sleep quality among students was very high during COVID-19 lockdowns, and that altered sleep might have resulted in lifestyle changes associated with behavioural changes, dietary changes, and BMI (Romero-Blanco, 2020).

A qualitative research study among US university students confirmed that many students experienced changes in the type and amount of food intake and increased snacking behaviours. Students ate food available to them at home, and increased free time contributed to boredom and snacking for some students, while some students used their free time to plan and prepare meals. About a third of the students attributed eating different foods at home to food availability issues related to the pandemic, such as groceries being out of stock, purchasing non-perishable foods, or the inability to get to a store (Powell et al., 2021).

The purpose of the research was to determine university students' health practices and nutritional status during COVID-19. Based on existing research, university students have experienced

sudden and unexpected changes their nutritional status while taking online classes away from the campus. Students are experiencing poor sleep quality, a decline in physical activity and movement, contributing to overweight or obesity, and this will eventually lead to chronic diseases. Studies have confirmed changes experienced in the food they ate, and the amount consumed (Chirico, 2020; Powell et al., 2021; Romero-Blanco, 2020).

Materials and Methods

This study used a quantitative research design with a convenience sampling procedure. A survey questionnaire served to gather data among the university students during the pandemic's lockdown (from June and July 2021). The study was conducted according to the guidelines of the Institutional Review Board ethically approved by the Research Ethics Committee. Informed consent was obtained from all subjects involved in the study before data collection and ensured confidentiality, no risk, anonymity, and voluntary participation. Researchers only used fully completed questionnaires (n=194) in this study. The study occurred in a private university in Jamaica during the period July 2021. A total of One hundred and Ninety-Eight (198) students ages 18 to 58 + served as the study participants.

Data collection

The researchers used Google Forms to create the instrument through the university network-using students' mailing lists. The questionnaire was accessible through any device with an internet connection. The sampled respondents voluntarily participated without any incentives. The respondents received instructions from the questionnaires, which consisted of mostly closed-ended questions. The questionnaire required demographic information about age, gender, home parish, college and school academic year. Students' health practices inquired as to whether they cooked every day, ate leftovers, smoked, drank alcohol, hours they slept, and physical activity engagement. Food consumption patterns inquired as to the frequencies of consuming refined and unrefined carbohydrates, drinking alcoholic beverages and soft drinks, eating junk food, meat, beans, and fruits and vegetables. On the other hand, section D (of the questionnaire) inquired about health conditions in terms of BMI. A self-reported height and weight provided data to calculate BMI, using the formula (weight (kg)/height (m^2). Each BMI was interpreted according to the criteria of the World Health Organization (WHO), only four categories were used: underweight (BMI < 18.5 kg/m^2), normal weight (18.5 $kg/m^2 \leq$ BMI < 25.0 kg/m^2) overweight (25.0 $kg/m^2 \leq$ BMI < 30.0 kg/m^2), and obese (BMI $\geq$ 30.0 kg/m^2). The students also indicated whether they had diabetes, hypertension, stress, obesity, depression, anxiety, or other conditions.

Data analysis

Data analysis occurred using the Statistical Package for Social Sciences (SPSS). The normality of each quantitative variable was tested before analysis. The numbers and percentages were tabulated in the form of a frequency distribution by using descriptive analysis for categorical variables. A Chi-square analysis was used to test the association between baseline information

and BMI among students. The results on the level of $p < 0.05$ were fixed for statistical significance.

Results

Table 1 displays the profile characteristics of the student respondents, which included age, gender, college, and school year. Of the sampled respondents (n=198), the majority were females 183(92%), were in the age category of 21-30 104 (52.5%), resided in Manchester 60 (30.3%), were in the College of Allied Health and Nursing 155 (78.3%) and were second-year students 129 (65.2%).

Table 1.Profile of the Sampled Respondents, n=198

Characteristic & Category	Number (Percent %)
Age	
18-20	89 (43.9)
21-30	104 (52.5)
31-40	7(3.5)
41-50+	1 (0.5)
Gender	
Male	15 (7.6)
Female	183 (92.4)
Home Parish	
Hanover	4 (2)
St. Elizabeth	31 (15.7)
St. James	10 (5.1)
Trelawny	5 (2.5)
Westmorland	13 (6.6)
Clarendon	27 (13.6)
Manchester	60 (30.3)
St. Catherine	16 (8.1)
St. Mary	3 (1.5)
Kingston	5 (2.5)
Portland	4 (2)
St. Andrew	5 (2.5%)
St. Thomas	3 (1.5%)
St. Ann	15 (7.6%)
College	
Allied Health & Nursing	155 (78.3%)
Business & Management	13 (6.6%)
Education & Leadership	2 (1%)
Humanities, Behavior & Social Sciences	29 (14.6%)m

School year	
1st year	30 (15.2%)
2nd year	129 (65.2%)
3rd year	17 (8.6%)
4th year	19 (9.6%)
Postgraduate	2 (1%)

Table 2 depicts the data on students' health practices during the COVID-19 pandemic. Of the sampled respondents, the majority or120 (60%) cooked food every day, sometimes they ate leftover food 129 (65.2%) and developed a sense of hunger, satiety and more appetite 88 (44.7%) while being at home during the COVID -19 pandemic. The respondents did not smoke before COVID-19 pandemic 188 (95.4%) neither did they smoke during the COVID-19 pandemic 192 (97.5%). When asked about their sleeping pattern the majority of the respondents did not experience any difficulties sleeping at night 130 ((66%), slept less than 7 hours per night 114 (57.6%), and did not take medication to help them sleep 187 (94.4%).

Table 2.Student's Health Practices during COVID -19, n=198

Characteristics and Categories	**Number (Percent %)**
Do you cook food every day?	
Yes	120(60.6%)
No	78(39.4%%
Do you eat the leftover food	
Never	23 (11.6%)
Sometimes	129 (65.2%)
Often	41 (20.7%)
Always	23 (11.6%)
Did your sense of hunger and satiety change during the period at home for the COVID-19 emergency?	
Yes	52 (26.4%)
No	38 (19.3%)
Less Appetite	19 (9.6%)
More appetite	88 (44.7%)
Did you smoke before the COVID-19 Pandemic period?	
Cigarettes	1 (0.5%)
Ganja	8 (4.1%)
No	188 (95.4%)
Do you currently smoke?	
Yes	5 (2.5%)
No	192 (97.5%)
Is it difficult for you to sleep at night?	
Yes	67 (34%)

No	130 (66%)
How many hours do you currently sleep?	
<7 hours per night	114(57.6%)
7-9 hours per night	72 (36.4%)
>9 hours per night	12 (6.1%)
Do you have to take medication to help you to sleep?	
Yes	11 (5.6%)
No	187 (94.4%)

Figure 2 depicts that the majority of the respondents, 136 (68.7%), did not play sports before the COVID -19 pandemic, and very few went to play in the gym 23 (11.6%), run 19 (9.6%), did aerobic 16 (8.1), played soccer 9 (4.5%) and engaged in Volleyball 6 (3%), Basketball 4 (2%) and swimming 3(1.5%).

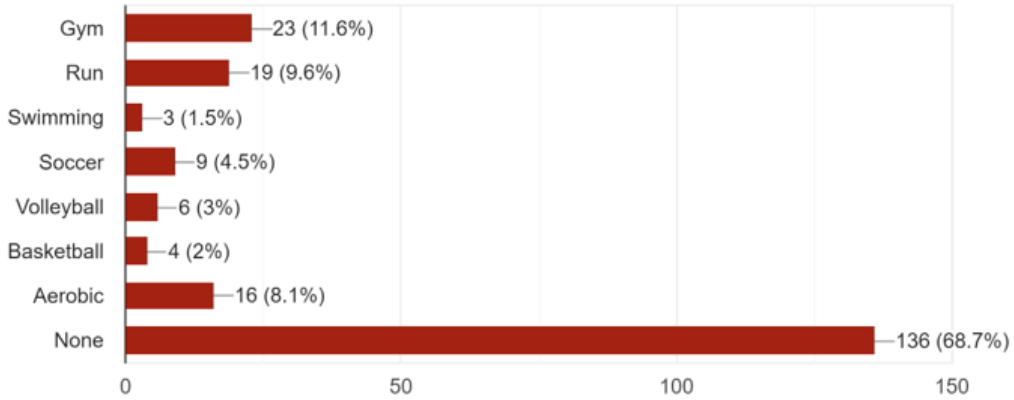

Figure 2.Physical activities Before the COVID – 19 Pandemic

Figure 3 depicts that majority of the respondents are not involved in physical activities during COVID-19 156 (78.8%). Very few respondents are going to the gym 18 (9.1%), and are involved in aerobics 16 (8.1%), running 13 (6.6%), playing soccer 4 (2%) and basketball 1 (0.5), and none playing volleyball. When asked how many times they played sports before and after COVID-19, the majority of the respondents said "never" 136 (68.7%) and 152 (77.2%) concurrently.

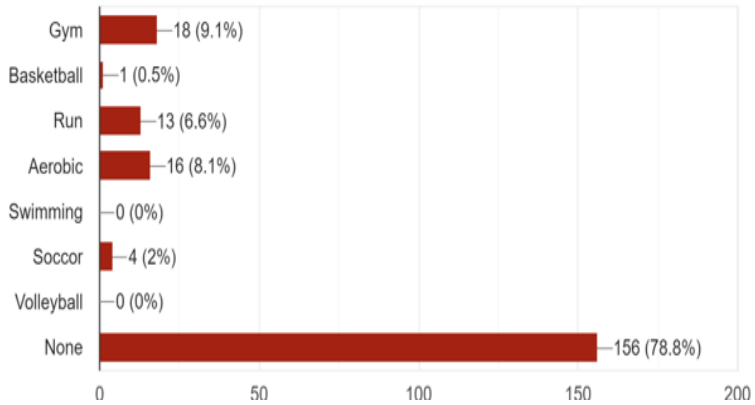

Figure 3.Physical activity during COVID-19 pandemic

Figure 4 presents the data on the number of times per week the respondents played sports before the COVID-19 pandemic. The majority of the respondents, 67.2%, never played while 17.7% played 1-2 times a week and 13.1% played 3-4 times a week.

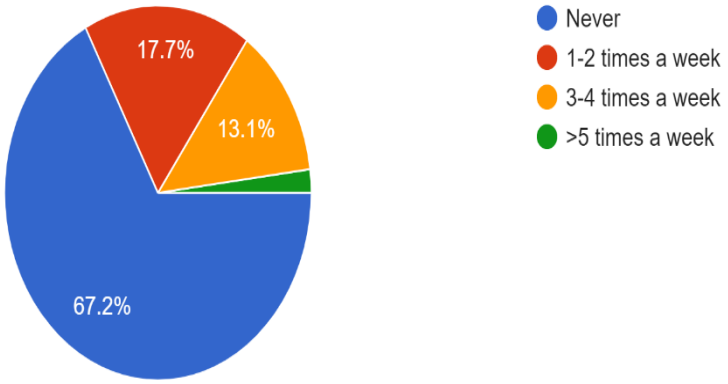

Figure 4.Number of times per week respondents are engaging in physical activity before the COVID-19pandemic

Figure 5 presents the data on the number of times per week the respondents engaged in sports during COVID-19. The majority of the respondents, 77.2%, are not playing any sports, and only 12.7% are playing 1.2times a week, and 8.7 are playing 3-4 times a week.

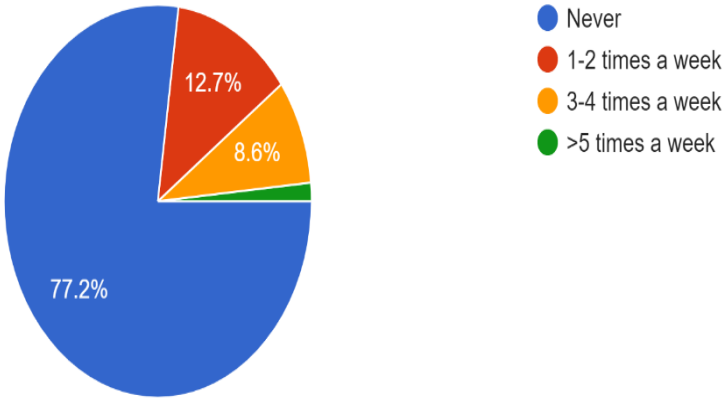

Figure 5.Number of times per week respondents engaged in physical activity during COVID-19

Table 3 shows the data on frequencies of food consumption during the COVID-19 pandemic. Among the sampled respondents (n=198), the majority consumed refined59 (29.8%) and unrefined 56 (28.3%) carbohydrates 3-4 times per week; alcoholic beverages 64 (32.3%) less than 1 per month; soft drinks 45 (22.5%) 1-3 times per month, junk food such as fast food, salty and sugarysnacks63 (31.8%) 1-2 times per week; seafood, meats and poultry 42 (21.2%) 3-4 times per week; peas, beans and nuts 87 (43.9%) 1-2 as well as and fruits and vegetables 64 (32.3%) only 1-2 times per week.

Table 3.Frequencies of Food Consumption during COVID-19 Pandemic

Frequencies of consumption of:	Never	>1 per month	1-3 times per month	1-2 times per week	3-4 times per week	5-6 times per week	1 times per day	2 or more times per day
Refined Carbohydrates	2 (1%)	1 (0.5%)	11 (5.6%)	33 (16.7%)	59 (29.8%)	38 (19.2%)	16 (8.1%)	38 (19.2%)
Unrefined Carbohydrates	___	5 (2.5%)	20 (10.1%)	36 (18.2%)	56 (28.3%)	37 (18.7%)	15 (7.6%)	29 (14.6%)
Alcoholic beverages	87 (43.9%	64 (32.3%)	41 (20.7%)	____	4 (2%)	____	_____	2 (1%)
Soft Drinks		22 (11.0%)	45 (22.5%)	38 (19.0%)	31 (15.5%)	23 (11.5%)	9 (4.5%)	25 (12.5%)
Junk Food (Fast foods Salty, sugary)	2 (1%)	21 (10.6%)	48 (24.2%)	63 (31.8%)	25 (12.6%)	12 (6.1%)	12 (6.1%)	15 (7.6%)
Seafood, meats, & poultry	6 (3%)	6 (3%)	21 (10.6%)	39 (19.7%)	42 (21.2%)	40 (20.2%)	23 (11.6%)	21 (10.6%)
Peas, beans % nuts	3 (1.5%)	10 (5.1%)	25 (12.6%)	87 (43.9%)	32 (16.2%)	21 (10.6%)	13 (6.6%)	7 (3.5%)
Fruits and vegetables		6 (3%)	21 (10.6%)	64 (32.3%)	48 (24.2%)	24 (12.1%)	19 (9.6%)	16 (8.1%)

Table 4 depicts data on respondents' perception of their nutrition status during the COVID-19 pandemic. The majority of the respondents, 118 (59.6%) perceived to have gained weight, rate their health and nutrition status as good 79 (40.1%) or neither good nor poor 76 (38.6), and as much as majority 101 (51.3%) do not have health issues, a significant number of respondents are experiencing stress 57 (28.9%and anxiety 51 (25.9%).

Table 4.Respondent's perception of their Nutrition status

Characteristic and categories	Number (percentage %)
Did you gain weight during the COVID-19 pandemic?	
Gained weight	118 (59.6%)
Lost weight	38 (19.2%)
The same	42 (21.2%)
How would you rate your health and nutrition status	
Excellent	4 (2%)
Very good	27 (13.7%)
Good	79 (40.1%)
Neither good nor poor	76 (38.6%)
Poor	11 (5.6%)

Do you have any of the following health issues?	
Hypertension	4 (2 %)
Stress	57 (28.9%)
Obesity	7 (3.6)
Depression	37 (18.8%)
Anxiety	51 (25.9%
Any other	6(3%)
None	101 (51.3%)

Table 5 and figure 5 shows the Body Mass Index of the respondents. The majority, 104 (52.3%) of the respondents had a healthy weight; still, 57 (28.6%) were overweight, 30 (15.1%) obese, and only 8 (4%) were underweight.

Table 5.Body Max Index

Characteristic and categories	Number (percentage %)
BMI	
Underweight	8 (4%)
Healthy weight	104 (52.3)
Overweight	57 (28.6 %)
Obese	30 (15.1%)

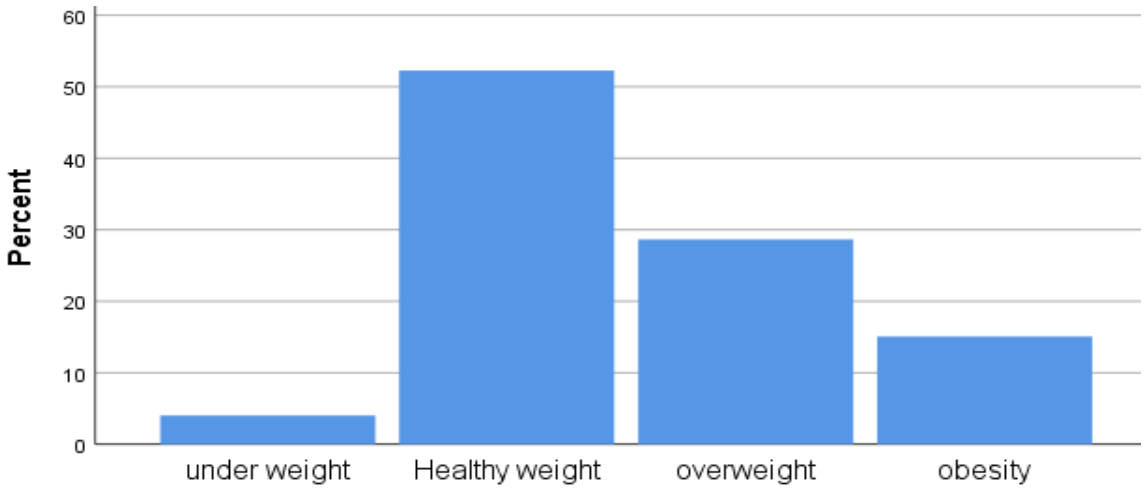

Figure 6.Body Mass Index

Table 5 depicts the correlation between independent variables and dependent variables. Results showed that nutrition status as rated by the respondents correlated at the P-value of 0.030 with their current smoking and a P-value of 0.045 with difficulty sleeping at night. Health issues correlated with taking medication to sleep at a P-value of 0.015. BMI correlated with eating leftover food at a P-value of 0.028, time currently engaged in sports at a P-value of 0.34, consumption of refined carbohydrates at a P-value of 0.013, and consumption of soft drinks at a P-value of 0.015.

Table 5.Correlation between independent variables and dependent variables

Parameters	P-value
Perception of nutrition status and:	
current smoking	0.03*
difficult sleeping at night	0.04*
Health Issues and :	
Medication to sleep	0.01**
BMI	
Eat leftover food	0.02*
Consumption of refined carbohydrates	0.01**
Consumption of soft drinks	0.01**

*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Discussion

The COVID -19 pandemic triggered widespread disruption in the lives of university students across Jamaica. This current study was conducted among 198 students from a private university in Jamaica to understand the health practices and nutritional status during COVID -19 pandemic. A quantitative study was conducted to gather data among the university students. This current study revealed that most of the respondents cooked every day, and sometimes they ate leftover food 129 (65.2%). These results are supported by a study done in a public university in the US that revealed that, due to lockdown measures, students are eating food that is available at home. Furthermore, issues related to the pandemic, such as groceries being unavailable, purchasing non-perishable foods, or the inability to get to a store, could have resulted in them eating the leftover food (Powell et al., 2021).

Davitt et al. (2021) conducted a study that revealed 62% of families decreased take-out/fast-food/already prepared meals, and 73% increased consumption of home-cooked meals during the pandemic, supporting the findings in this current study. The majority, 44.7%, of the students developed an increased appetite while being at home during the COVID -19 pandemic, which may be due to boredom experienced due to lockdowns. Students slept less than 7 hours per night, yet one study found that poor sleep quality among students was very high during COVID-19 lockdown and that altered sleep might result in lifestyle changes associated with behavioural changes, dietary changes, and BMI (Romero-Blanco, 2020). Although the students indicated less sleep during COVID-19 lockdowns, students did not experience difficulties sleeping at night 130 (66%), neither did they take any form or type of medication to help them sleep 187 (94.4%).

The majority of student' respondents, 136 (68.7%), did not play sports before the COVID-19 pandemic; their physical activities further declined during COVID-19 156 (78.8%). A study conducted about physical activity levels during the COVID-19 outbreak in youngsters of Northwestern Lombardy revealed that physical activity was reduced for students because of lockdown measures, which could alter their BMI (Tornaghi, 2021). This current study showed

that the majority of the respondents, 118 (59.6%), reported weight gain possibly resulting from a sedentary lifestyle. However, a primary contributor to the obesity or overweight epidemic is physical inactivity, which could be promoted or delayed by various environmental factors. The Food-Based Dietary Guidelines for Jamaica (2015) recommends making physical activity a part of daily routine because physical activity increases energy levels, reduces stress, promotes movements, controls body weight, prevents chronic diseases, builds strong muscles and bones, improves health and well-being, and provides stamina and vigour. Moreover, the guidelines suggest some useful tips people could apply in making physical activity a reality, including walking whenever possible, using stairs instead of the elevator, stretching and bending for a few minutes when working, playing active games, and participating in activities such as dancing, skipping and gardening.

The majority of respondents consumed refined 59 (29.8%) and unrefined 56 (28.3%) carbohydrates 3-4 times per week and junk and sugary foods 63 (31.8%) 1-2 times per week. Davitt et al. (2021) showed that students living with families consumed more home-prepared meals and reduced their intake of fast foods. They also found that few students met the dietary recommendations for fruit, and vegetables although intake was more evident in students living at home. Overall, few students met the dietary recommendations for peas, beans, nuts (43.9%), and fruits and vegetables 64 (32.3%), consumed 1-2 times per week. Even under pre-pandemic conditions, college students generally did not consume enough of these foods Ha et al. (2008). The Food-Based Dietary Guidelines for Jamaica (2015) suggest a reduced intake of sugary foods and drinks. The benefits of reducing these foods is a reduced risk of becoming overweight (obesity), hypertension, diabetes, heart diseases, and other chronic illnesses.

Furthermore, the Food-based dietary guidelines for Jamaica recommend including peas, beans, and nuts in daily meals because they are good fibre, protein, and minerals sources. A variety of fruits should be consumed daily, including naseberry, cherry, mango, orange, ripe banana, star apple, and others. Likewise, a variety of vegetables should also be eaten daily, including carrot, pumpkin, string beans, okra, callaloo, cabbage, lettuce, tomato, and broccoli, among others. Both fruits and vegetables are good sources of fibre, carbohydrates, vitamins, minerals, water and phytonutrients.

Concerning BMI, 104 (52.3%) of the respondents had a healthy weight. However, 29 % were overweight, and 15% were obese. As stated above, the majority, 59.6%, of the respondents perceived to have gained weight during the COVID 19 pandemic. These results are supported by a study done by Pop et al. (2021) which revealed that the BMI of the respondents increased with 1.8kg/m squared due to the weight gain during the COVID-19 pandemic. Under the pandemic circumstances, the energy balance between food consumption and physical activity was seriously disturbed, resulting in an increased BMI.

The relationship between the independent variables and dependent variables revealed that nutrition status as rated by the respondents correlated at the p-value of 0.030 with their current smoking and a p-value of 0.045 with difficulty sleeping at night. Health issues correlated with

taking medication to sleep at a p-value of 0.015. BMI correlated with eating leftover food at a p-value of 0.028, time currently engaged in sports at a P-value of 0.34, consumption of refined carbohydrates at a p-value of 0.013, and consumption of soft drinks at a p-value of 0.015.

Conclusion

This study was conducted to determine the healthy practices and nutritional status of university students during COVID-19. Specifically, the study determined the health practices in food preparations, smoking habits, sleeping patterns, engagement in physical activities, and consumption of healthy foods. The nutrition status indicators were the respondents' perception of their nutrition status, BMI, and the presences of chronic diseases during the COVID-19 pandemic. The study results indicated that, since university students' movement has declined during the COVID-19 pandemic due to online/remote learning, their appetite has increased, resulting in increased home cooking almost every day and increased consumption of leftovers.

Although university students are sleeping fewer hours per night due to lifestyle changes during the COVID-19 pandemic, they are not experiencing difficulties sleeping at night, nor are they taking any medications to help them sleep. Although students did not play sports before the COVID-19 pandemic, their physical activities has declined even more during the COVID-19 pandemic. As a result, the majority of the respondents reported weight gain during the COVID-19 pandemic. Respondents consumed both refined and unrefined carbohydrates more frequently than peas, beans, nuts, fruits and vegetables. However, the consumption of junk and sugary foods was less often because they are eating more home cooked meals at home. The majority of the respondents had healthy weight as per their BMI, but some were overweight and obese which confirmed their perception of gaining weight during the COVID-19 pandemic.

Recommendations

The Department of Nutrition and Dietetics at a college/university should develop materials containing health recipes to be shared with students during this COVID -19 pandemic to help them know how to cook a variety of healthy foods every day. It is essential to learn good time management as a student and ensuring adequate sleep, which will aid in concentration during studies. Even with online learning, students should engage in physical activities to avoid being overweight and obese and thus maintain good health.

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