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Malnutrition Analysis Based on Food Consumption and Other Factors in Under- Graduate Students of Chandigarh University

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Article History	Abstract
	Students' time at the university tends to be defined by a significant change in their dietary habits and lifestyle which exposes them to a number of risk factors associated with malnutrition, predisposition of various metabolic disorders, which are linked to nutrition. The aim of the study was to appraise the factors responsible for malnutrition in under-graduate students at Chandigarh University. Four hundred students of both the gender, aged between 18- 26 years old were screened for the study. Anthropometric parameters (including Height, weight and BMI) were taken into consideration for the assessment, besides each participant completed a dietary pattern and lifestyle questionnaire. The mean Height and weight of participants were 165.46 ± 11.28 and 64.77 ± 13.93 respectively, and BMI was 23.61 ± 4.16 kg/m². All the age categories were impacted, around 5% were underweight, 24.25% were overweight and 5.5% were obese. . Inadequate consumption of whole grains, protein rich food, green leafy vegetables and fruits was observed amidst the population of students pertinent to the eating patterns. The majority of the eaten carbohydrates came from cereal. In addition, 21% of them followed a diet lacking variety, and 2% of them experienced severe food insecurity. 6% of them had low nutritional intake. Except for carbs, which exceeded the suggested reference values and made up 62.69–13.84% of the students per diem energy uptake, the students' consumption of macronutrients was within the recommended reference ranges. Additionally, only 32.2% of respondents reported getting enough energy. A high incidence of overweight was linked to a diet that lacked variety. Both types of malnutrition are common among Chandigarh University students, and educating this young population about nutrition will be crucial to preventing consequences from malnutrition in later life.

1. Introduction
Malnutrition and its prevalence among students

Malnutrition is a major global health concern that affects people of all ages, especially young adults. Malnutrition encompasses deficiencies, excesses, imbalances in a person's intake of energy and / or nutrients and can be categorized into three main groups: Undernutrition, micronutrient- related malnutrition, and overweight (Shinsugi et al., 2020). According to the World Health Organization (WHO), the prevalence of malnutrition among university students in India and worldwide is on the rise. In India, the prevalence of malnutrition among university students is estimated to be around 40% whereas in the rest of the world it is estimated to be 25%. In India, about 43% of women of reproductive age are anemic. Malnutrition can have serious consequences for physical and mental health, and it can also increase the risk of chronic diseases later in life. (Claus et al., 2018).

The poor nutrition of under-graduates can have long- lasting consequences and impede national development by negatively impacting immunity, cognitive development, growth, reproduction and work productivity.

Factors responsible for malnutrition among students

The main causes of malnutrition among university students include inadequate dietary intake due to poor eating habits, and lack of physical exercise. In India, the prevalence of malnutrition among university students is higher due to lack of access to nutritious food and an unhealthy lifestyle. Additionally, university students in India are more likely to suffer from malnutrition due to lack of access to health and inadequate dietary intake.

Furthermore, the lack of nutritious food and regular physical activity are also major contributing factors to the increasing number of malnutrition cases among university students in this research aims to explore the reasons behind malnutrition among university students, focusing on their food consumption habits. Through an analysis of various research papers, this study will shed light on the impact of poor dietary choices on the nutritional status of university students.

Lately, there has been a growing focus on the impact of food consumption in the development of malnutrition. Studies have shown that a diet that is low in micronutrients, such as iron, zinc, and various vitamins can increase the risk of malnutrition. (Biswas et al., 2019).

Objectives

To appraise the factors responsible for malnutrition in undergraduate students in Chandigarh University.

To collect the data and analyze it with suitable statistical software.

The purpose of this paper is to investigate the correlation between food consumption and other factors, for instance, demographic factors, physical activity, and occurrence of infections with malnutrition in under- graduate students in Chandigarh University.

2. Materials And Methods
Study area

An undergraduate student sample from Chandigarh University in Punjab, India was included in this institutional- based cross-sectional analysis.

Sampling methodology

A total of 400 students, between the age group of 18-26 years of age were selected based on stratified selection technique, for participating in the study. The criterion used to exclude participants from the study included non-undergraduate students, students outside of the Chandigarh University, and students who do not fall in the age group of 18-26 years.

Data classification

The Data collection was completed with the aid of Google forms, the participants were asked to fill out a structured questionnaire. The collected data was then entered into excel worksheets, and transferred to the R- Programming, software version R- 4.3.1 for window, for statistical analysis.

Comprehensive chart was drawn by carefully analyzing and consolidating the data that was acquired for the study. The information was then computed, organized, discussed and presented using percentages, mean, standard deviation, correlation coefficient, coefficient of variation, and regression as a part of statistical analysis.

Statistical analysis

Statistical analysis was carried out using R-Programming. The descriptive data was converted to Likert scale and then transformed to the software. The gathered data was then presented as frequencies, percentages, mean, and standard deviation. Regression analysis was done to observe the association of various factors that have led to underweight, overweight and obesity, among the university students. *P*-Value was set to 0.05 as significant.

3. Results and Discussion
The study population comprised 400 undergraduate individuals of Chandigarh University, of which 200 (50%) were male participants, and 200 (50%) were female participants. A cross-sectional survey was performed to describe the association between age, gender, BMI, dietary habits, and lifestyle with malnutrition among the age group of 18- 26 years of age. Table 1 shows the demographic data of the population.

Table 01: Characteristic of Focus Group [N=400]

| Characteristics Group	Responses	Percentage%	Mean ± S. D.
Gender (Male)	200	50	
Gender (Female)	200	50	
Level of Education	Under-Graduate		
Age (In Years)	18- 20 20- 22 22- 24 24- 26	35 37.6 23 4.5	
Height (in cm)	400		165.46 ± 11.28
Weight (in kg)	400		64.77 ± 13.93
BMI	400		23.61 ± 4.16
BMI Assessment (As per WHO Standard)	Underweight (18.5) Normal Weight as per Height (18.5- 24.9) Overweight (25- 29.9) Obese (>30)	5 65.25 24.25 5.5	
Place of Residence	With Family (At Home) In University Hostel With Friends in PG Alone in PG.	23.4 33.8 22.9 19.9	
Physical Activity	Walking Running or Jogging Yoga or Slow Stretching Exercises Specified Workout at the Gym/ HIIT No Physical Activity.	26 25.75 14 13.50 20.75	
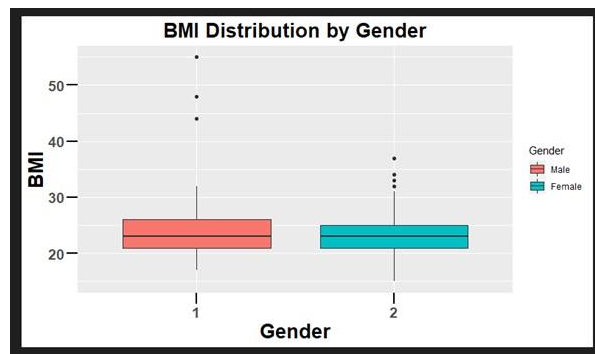
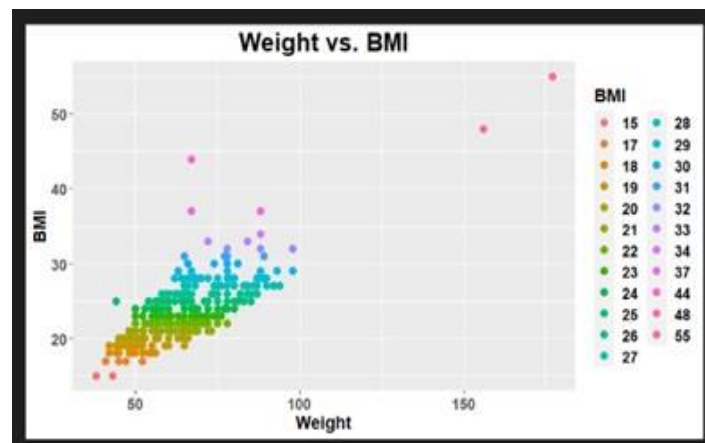**Figure 01:** BMI distribution by Gender.

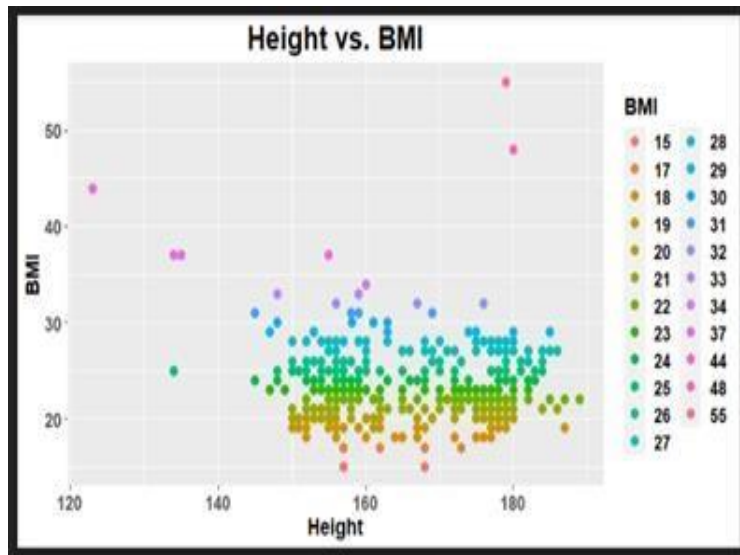**Figure 2:** Scatter plot of Weight Vs BMI

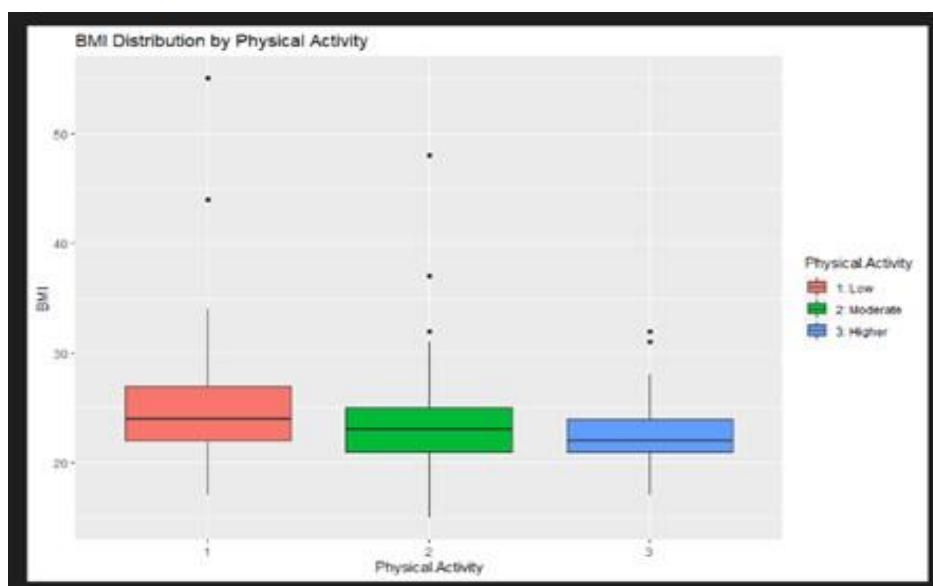**Figure 3:** Scatter plot of Height Vs BMI

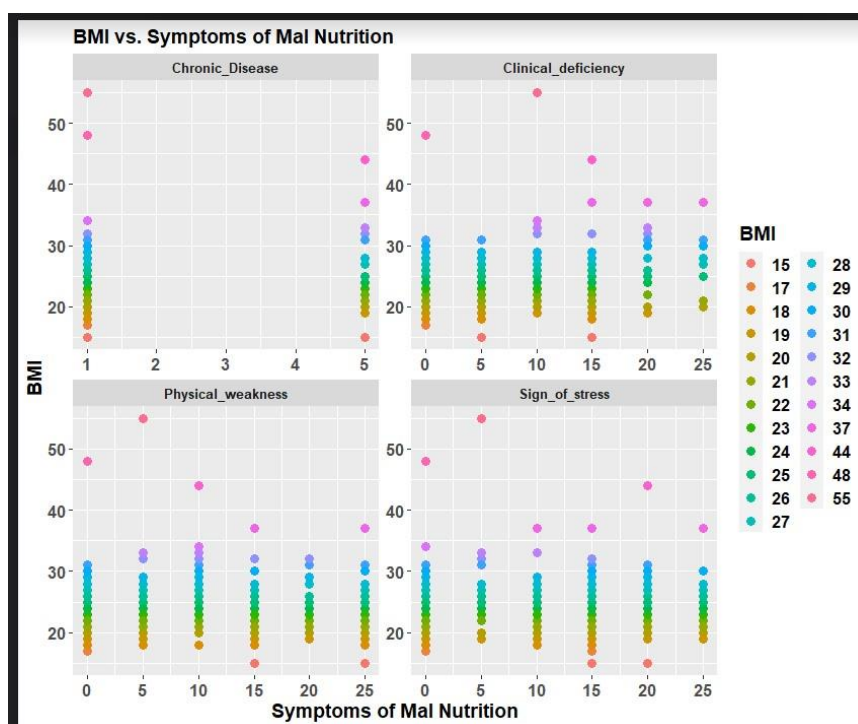**Figure 4:** Depicts The Relation Between Physical Activity And BMI.

Figure 5: Depicts Correlation among Various Signs and Symptoms Associated with Malnutrition

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Figure 1 illustrates that out of 200 male participants, although the majority, 135 (67.5%) was observed to have a healthy weight to height ratio (18.5- 24.9), however, 2.5% participants were found to be underweight (BMI <18.5) and 26.5 % individuals were observed to be overweight (25- 29.9 kg/m^2) and the remaining 3.5% were obese (BMI >30). While the female counterpart was observed to have 63% of healthy weight individuals and 7.5%, 22%, 7.5% were observed to be underweight, overweight and obese respectively. It can be inferred that though the percentage of obesity is wider in the female counterpart but the range of obesity is much higher in male counterpart.

Figure 2 and 3 contains the scatter diagram of BMI with height and BMI with Weight. The mean and standard deviation of the weight was found to be 64.77 ± 13.93, and mean and standard deviation of height was found to be 165.46 ± 11.28.

Figure 4, depicts the relation between physical activity and BMI. The prevalence of physical inactivity was found related to malnutrition (Pengpid. S. ET. al., 2015). The figure clearly depicts that groups that performed less physical activity have higher ranges of BMI crossing overweight and obesity and the groups which have moderate levels of physical activity have BMI ranges slightly lower than the former. However, the group that has higher physical activity level has BMI in normal ranges. This clearly indicates that physical activity has an impact on BMI and hence overall health. (Bauman. A. ET. al., 2012) Hence, the individuals leading an active lifestyle are less prone to malnutrition. Corresponding results were traced in the study conducted by Mary. K. ET. al., 1997. The study also conducted that physical inactivity is also associated with various dietary practices and it also shows a dominant link of physical inactivity to non-communicable diseases.

Figure 5, shows the correlation among BMI, associated factors of malnutrition. The study revealed a clear negative correlation between physical activity, BMI and clinical deficiency, which further shows that with a good higher level of physical activity, the BMI lies between normal ranges. and also it shows that with a good higher level of physically active individuals. Moreover, the graph also suggests a very strong correlation between physical weakness and clinical deficiency and the signs of stress also increase in the same association. These results are in resemblence to the study done by Anand. T. et.al. 2011.

The Evaluation of eating patterns were done through a food frequency questionnaire, using a list of foods that are typically intaken by the inhabitants of the Northern area of the country, the first component was a seven-day recall food frequency questionnaire that allowed for the evaluation of the frequency of consumption of various food groups. Each participant was asked to disclose how frequently they had eaten over the previous seven days. The information gathered then allowed for the classification of each food group into sub- groups and their impact on the BMI of the participants, to describe the association of disbalance of nutrients and frequency of ingestion of particular food group.

An evaluation of dietary habits of the university students

The principal source of carbohydrates in the diet regimen came from the cereals, which included wheat, rice, millets, refined cereals, along with roots and tubers like potato, yam, etc. In terms of dairy products and foods high in protein, the findings reveal that a sizable majority of participants consume protein seldom (at most once per week), nonetheless the source. Pulses, Poultry and dairy products were the least popular, with only 14% of research participants consuming them daily. Once a week consumption for pulses, poultry and dairy is 49.8%, 23%, and 37.5% respectively. Only 9.5% of participants reported eating fruit daily, while a majority of participants 44.3% consumed fruits, once a week, and males were less likely than females to accounted doing so. The vegetables were grouped into three categories, including, the leafy greens roots and tubers and other vegetables. It was found that the daily consumption of green leafy vegetables, roots and tubers and other vegetables were found to be 12.5%, 19.8% and 11.8% only. The majority consumed processed foods on a daily basis.

Assessment of Food consumption, and Dietary Diversity Score

According to the classification of participants based on their results, 8.5% (n = 34) of them maintained an inadequately varied diet, and only 3.5% (n=14) had an excellent diet diversity score. It can be inferred that the individuals with low dietary diversity score (DDS) showed deranged value for the BMI, which shows that low DDS leads to insufficient nutrient intake by the individual, causing malnutrition. Similar results were also found in the study conducted by Mbong. M. 2021.

Finding of the present study corroborated that a vast portion of carbohydrates came from refined cereals, the intake of protein rich foods (i.e., pulses, poultry, eggs) were observed to be less than the RDA, as the periodicity of uptake of these foods was noted to be once a week, which is too less to fulfill the

bodily demands for protein. Moreover, it was observed that the intake of hollow calories was much higher than expected, which leads to the obesity, the predisposition of various metabolic disorders.

Table 02: Prevalence of Malnutrition among the students of Chandigarh University.

[N= 400]	Underweight (BMI <18.5 kg/m^2)	Healthy (BMI 18.5- 24.9 kg/m^2)	Overweight (BMI 25- 29.9 kg/m^2)	Obese (BMI ≥30 kg/m^2)
Overall	20	261	97	22
Male	5	135	53	7
Female	15	126	44	15
18-20 years of age	6	112	19	3
20-22 years of age	8	92	38	12
22-24 years of age	4	45	38	5
24-26 years of age	2	12	2	2
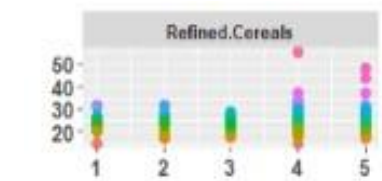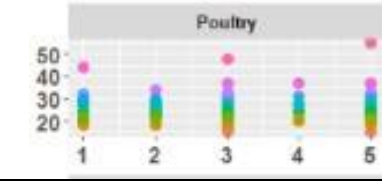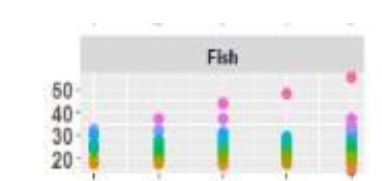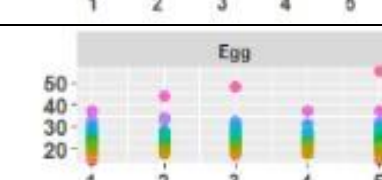
The evaluation of this research which targets at assessing the malnutrition among the scholars of Chandigarh University, shows that both the model of malnutrition co-occurred, among the students, 5% were undernourished, and 29.75% were over-nourished (24.25% for overweight and 5.5% for obesity) (Table 2). The occurrence of undernutrition was found to be lower when compared with 47.0% but the prevalence for over nutrition was found to be higher, 5.9% for overweight and 2.7% for obesity as per the results of study carried out by Ahmad. S. ET. al., (2018). These results were also lower than that were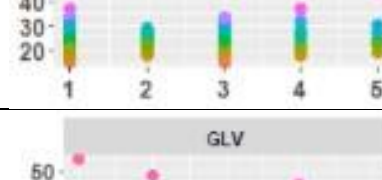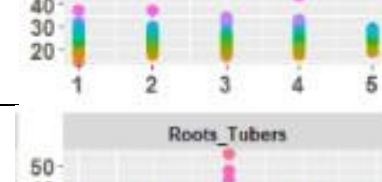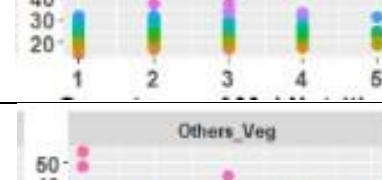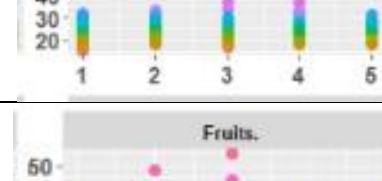 revealed in the research carried out by Pengpid. S. ET. al., (2014) amidst the students of Gitam University in India. (11.7% Underweight, 37.5% overweight and 26.8% obese). The disparity could be explained by the geographical variation highly affecting the food choices and availability. Fernandez, et. al. (2014). As Chandigarh University is situated Punjab, which is geographically plain and offers, so the diet here is typically wheat based. While rice and curries form the staple food of Andhra Pradesh, due to hot and humid climatic conditions. Moreover, the consumption of non-vegetarian food is higher in Andhra Pradesh when compared with Chandigarh. Considering overweight, our results were higher than 5.9% as revealed by Ahmad. S. ET. al., (2018). This could be accredited to the gradation of urbanization of the two cities. Chandigarh is more urbanized than cities of Uttar Pradesh. In fact, the research has shown that urbanization greatly fuels the rise in obesity and associated problems. Women were found to be more negatively impacted by both being underweight and overweight than men, despite the fact that men had greater ranges of BMI. The anatomy of females, characterized by hormonal development that promotes adipose increase, may help to explain why women are more likely than males to be overweight or obese. In contrast, in young boys, lean mass (muscle development) is more prominent. (Rajappan Et. al., 2015).
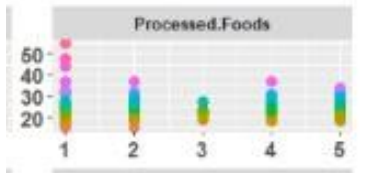
Table 03: A Comprehensive Table of Food Consumption Frequency of the Participants

Food Group	Frequ ency		Overall Number	Percentage %	BMI Vs Food Groups
1. Dairy a. Milk	1. 2. 3. 4. 5.	Daily 4-6 times/ week 1-3 times/ week Once in a month Never	119 57 150 46 28	29.8 14.2 37.5 11.5 7	

b. Curd	1. 2. 3. 4. 5.	Daily 4-6 times/ week 1-3 times/ week Once a month Never	60 90 168 54 28	15 22.5 42 13.5 7	
c. Paneer	1. 2. 3. 4. 5.	Daily 4-6 times/ week 1-3 times/ week Once a month Never	36 81 133 126 24	9 20.3 33.3 31.5 6	
d. Butterm ilk	1. 2. 3. 4. 5.	Daily 4-6 times/ week 1-3 times/ week Once a month Never	40 57 104 155 44	10 14.2 26 38.8 11	
e. Other Milk Products	1. 2. 3. 4. 5.	Daily 4-6 times/ week 1-3 times/ week Once a month Never	39 31 69 193 68	9.8 7.8 17.3 48.3 17	
2. Legumes & Pulses	1. 2. 3. 4. 5.	Daily 4-6 times/ week 1-3 times/ week Once a month Never	42 107 199 46 6	10.5 26.8 50.3 11.5 1.5	
3. Cereals a. Wheat	1. 2.	2-4 times/ day At least once/day	152 213	38 53.3	

	3. 1-3 times/ week 4. 2-4 times/ 5. Month 6. Never	20 5 10	5 1.3 2.5	
b. Rice	1. 2-4 times/ day 2. At least once/day 3. 1-3 times/ week 4. 2-4 times/ month 5. Never	111 230 40 16 3	27.8 57.5 10 4 0.8	
c. Millets	1. 2-4 times/ day 2. At least once/day 3. 1-3 times/ week 4. 2-4 times/ 5. Month	66 43 136 54 101	16.5 10.8 34 13.5 25.3	

	Never			
d. Refined cereals Products	1. Never 2. 2-4 times/ Month 3. 1-3 times/ week 4. At least once/day 5. 2-4 times/ day	14 26 135 135 90	3.5 22.5 33.8 33.8 22.5	
4. Flesh Foods a. Poultry	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week 4. Once a month 5. Never	18 37 92 13 240	4.5 9.3 23 13 60	
b. Fish	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week 4. Once a month 5. Never	12 28 63 39 258	3 7 15.8 9.8 64.5	
c. Eggs	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week Once a 4. month	64 34 77 14	16 8.5 19.3 3.5	
	5. Never	211	52.8	
d. Mutton	1. Never 2. Once a month 3. 1-3 times / week 4. 4-6 times/ week Daily 5.	259 38 64 33 6	64.8 9.5 16 8.3 1.5	
5. Vegetables a. Green Leafy Vegetables	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week 4. Once a month 5. Never	50 67 140 131 12	12.5 16.8 35 32.8 3	
b. Roots & Tubers	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week 4. Once a month 5. Never	79 85 152 78 6	19.8 21.3 38 19.5 1.5	
c. Other Vegetables	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week 4. Once a week 5. Never	47 71 106 158 18	11.8 17.8 26.5 39.5 4.5	
6. Fruits	1. Daily 2. 4-6 times/ week 3. 1-3 times/ week 4. Once a month 5. Never	38 110 177 66 9	9.5 27.5 44.3 16.5 2.3	

7. Miscellaneo us A. Process ed Food	1.	2-3 times/ day	130	32.5	
	2.	Once Daily	116	29	
	3.	0-1 times/ week	7	1.8	
	4.	5-6 times/ week	98	24.5	
	5.	2-4 times/ week	49	12.3	

Processed.Foods

Regarding the food consumption analysis, a substantial majority of individuals were found to have a low regularity of consumption of protein rich foods, independent of the sources (Table 3). These results were distinguishable from results revealed by Nibal et al., and Mbong M. et al., in regard with the poultry, egg and fish consumption. They found 30.7% poultry consumption, 32% fish consumption, once a week, which is higher than our results. The results were similar in egg consumption. As for the carbohydrate consumption, it was noted that cereals consumption was higher as compared to millets, roots and tubers. Among cereals wheat consumption was noted to be higher than rice, this could be due to its higher productivity and availability. Except for carbs, which were above the suggested reference levels, the students' daily intake of macronutrients did not fell within the range. This suggests an unbalanced diet. The high rates of hot beverages, sweetened meals, and cereal intake among students can be used to explain these findings. M. Khatatbeh et al., made comparable observations. The authors discovered a very low protein intake in addition to excessive carbohydrate intake. It is important to highlight that there was no discernible gender difference. This shows that the greater incidence of obesity and overweight in women is probably not a result of caloric intake but rather the result of the generally low level of physical activity among women.

Table 04: Food Groups for Dietary Diversity Score (DDS)

FOOD GROUPS	FOODS INCLUDED
Milk & Milk Products	Milk, Curd/ Yogurt, Cottage Cheese, Buttermilk, Lassi, Other Milk Products.
Pulses & Legumes	Beans, Soya, Pigeon Pea, Green Gram, Lentils, Chick peas, Rajma.
Cereals	Wheat, Rice, Millets, Refined Cereals
Fleshy Foods	Poultry: Chicken, Turkey Red Meat: Veal, Goat (Mutton), Sausage, Beef
Eggs	Egg
Green Leafy Vegetables	Spinach, Kale, Lettuce, Amaranth Other Vegetables: Onion, Tomato, Cabbage, Cucumber, capsicum.
Roots and tubers	Potato, Yam Taro, Sweet Potato.
Fruits	Mango, apple, banana, guava, pineapple, oranges
Fats & Oils	Butter, ghee, refined Oil, Mustard oil, Margarine.
Nuts and Seeds	Almonds, cashew nuts, pistachios, sesame seeds, flax seeds, sunflower seeds, pumpkin seeds.

The fruit consumption was observed to be lower than the recommended range (Table 3), most individuals were found to be consuming fruits only once a week. Research carried out by Bhavani. V. ET. al., found similar results as our study. Only 12.5% students consumed green leafy vegetables daily, and only 9.5% students were noted to have partaken fruits, on daily basis, which is lower than the finding of study conducted in Delhi, which reported 12% fruit uptake. In our study it was also found that fruits and vegetables consumption was more among woman than males, this analysis is similar with many studies that were conducted in the past. Taking into consideration, the place of residence, it was noted that students who with their families had higher consumption of fruits, vegetables and whole cereals as compared to the students who lived alone, with friends and in the university hostels. This validates the facts that living in settings outside the homes brings consequential changes in the dietary patterns of the students. (Ansari et al. 2012) (Bagordo F. et. al., (2013) also acclaimed a significant association between High dietary diversity score among the students who lived with their parents compared to the ones who resided in the university hostels. (Ali et. al., 2020). This confirms the facts that since students are dependent on the outside sources for the dietary needs, it causes a dramatic decline in the dietary habits, making them choose fast foods, due to its taste, availability, time mismanagement, academic stress. (Kumar A. et. al., 2020).

Table 5's analysis of the data on food intake reveals that only 3.5% of students had higher Dietary diversity score, and another fraction of 12.25% had a diet that was acceptable, compared to the rest

84.25% who had inadequate diet, which lacked in various nutrients. These finding are more in line with the Baseer ET. al., (2015). The results were quite higher than Kumar ET. al., (2020) observation in Pan India Study, where 34.7% had poorly diversified diet, and 28.5 % had a good dietary diversity score. The Poor diet diversity is displayed due to Psychological, Socio-demographic factors, Monotonous diet. Bisogni, C. ET. al., (2007). In the study conducted by Ganasegran ET. al., in Malaysian University, it was demonstrated that there were substantial coalition between bad eating habits and number of Sociodemographic and Psychological characteristics. In a cross- sectional survey conducted by Gunes, F ET. al., (2012) where roughly 30% of the students reported skipping breakfast most of the days, which is lesser than our research finding 22.5%, this tendency was found to be consistent. Additionally, a particularly prevalent element of dietary behavior among undergraduates is the frequent assimilation of tea, coffee, processed foods, and packaged foods as snacks. The snacking habit was found strongly linked with high calorie consumption, which leads to weight growth and contributes to nutrient deficit diet. Similar case was reported by Khatatbeh, M (2021).

When evaluating the causes of malnutrition in this study's participants, it suggests that Obesity and overweight issues are typically brought on by increased consumption of saturated fat, found in processed foods, overeating, eating quickly, and decreased physical activity. The straightforward remedy to these issues is to either follow a light diet, a heavy diet combined with adequate physical activity, or to simply swap out the processed food intake with whole grains coupled with appropriate physical activity. Khan, I., & Ahmad, S. (2017) Table 6 illustrates the connection between BMI and Immunological responses. Students whose diet primarily composed of processed foods, lacked basic macro and micro nutrients were having clinically severe immune deficiencies and have more infections.

Table 05: Dietary Diversity Score of the Population

Dietary Score	Grade	Frequency	Percentage %
8-10	Excellent	14	3.5
6-8	Good	49	12.25
4-6	Average	145	36.25
2-4	Below Average	158	39.5
0-2	Poor	34	8.5

Table 06: Determination Of Various Infections And Its Effects On Bmi

Type of Infections	Frequency	Overall Number	Percentage	BMI Vs. occurrence of illness
Viral Fever	3-4 times/month 1-2 times/ month Once in 3 months Once in 6 months Rarely	111 85 95 74 35	27.8 21.3 23.8 18.5 8.8	
Cough & Cold	3-4 times/month 1-2 times/ month Once in 3 months Once in 6 months Rarely	131 94 102 47 26	32.8 23.5 25.5 11.8 6.5	
Indigestion/ Flatulence	3-4 times/month 1-2 times/ month Once in 3 months Once in 6 months Rarely	127 85 90 67 31	31.8 21.3 22.5 16.8 7.8	
Food Borne Infections	3-4 times/month 1-2 times/ month Once in 3 months Once in 6 months Rarely	55 49 101 131 64	13.8 12.3 25.3 32.8 16.0	

Other Illnesses	3-4 times/month 1-2 times/ month	47	11.7	
	Once in 3 months	4	8.5	
	Once in 6 months	81	20.2 40.1	
	Rarely	161	19.2	
		77		

Table: 07 – Overview of Key Obstacles and Facilitators to Healthy Eating Among University Students (n=400)

Factors	BARRIERS	ENABLERS
At Individual Level	☐ Unable to make informed Dietary Choices. ☐ Lack of Physical Activity. ☐ Time Mismanagement. ☐ Skipping Meals ☐ Poor Potion Control Over Consumption of ☐ Caffeine ☐ Higher Consumption of ☐ Processed Food Irregular Sleeping Patterns. ☐ Certain Food Restriction, Due to Food Allergy or Intolerance. ☐ Unhealthy Snacking ☐ Stress ☐ Weak Immunity ☐ Presence of Illness Proper Hydration	☐ Good Dietary Habits ☐ Active Lifestyle ☐ Healthy Snacking ☐ Meal Planning ☐ Proper Sleep ☐ Being Potion Aware Making Informed Dietary Choices. ☐ Time Management Stress Management. ☐ Low Water Consumption ☐ Home Made Food
Social Level	☐ Food Culture and Tradition ☐ Limited Dietary Choices. ☐ Peer Influence ☐ Family Influence	☐ Diverse Food Culture ☐ Seasonal Availability ☐ Parental Food Behavior
Environmental Level	☐ Easy availability of Processed Food ☐ College Dining Services	☐ Home Made Food

Limitations:

The research exclusively depended on the data reported by the participants themselves which was collected and presented. The dietary patterns may not represent the true habits and these might be socially desirable. Only a similar population can be used to reproduce the study findings.

4. Conclusion

In conclusion, the students of Chandigarh University carry a double burden of malnutrition; the majority of students had a diet that was inadequately diversified and characterized by a high ingestion of refined cereals, contributing to carbohydrate uptake exceeding the recommended ranges. Moreover, refined cereals are deficit in B- complex vitamins and dietary fiber. Besides the uptake of vegetables and fruits was also found to be less among the students, which has led to deficiencies. Finally, regular physical

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activity was found to be associated within standard BMI ranges, and less physical activity showed overweight and obesity, and it also decreased the chances of infection, and did not show any signs and symptoms of weakness. The consumption of whole grains, over refined should be encouraged. And the uptake of green vegetables and fruits should also be increased, to inculcate crucial minerals in the diet. These Young individuals would benefit from nutritional education because it would enable them make informed dietary choices and acquire healthy habits, both which can assist to minimize nutritional related issues after they begin an active lifestyle.

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