

## A Study on the Assessment of Nutritional Attitude among the Undergraduate and Postgraduate Students at an Indian Pharmacy College

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### ARTICLE INFO

#### Article History:

Received: 23.05.2024

Revised: 30.06.2024

Accepted: 24.07.2024

#### Keywords :

Balanced Diet  
Carbohydrates  
Nutrition  
Proteins

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### ABSTRACT

**Aim:** To assess the nutritional attitude among the undergraduate and postgraduate students at an Indian Pharmacy college.

**Methods:** A total of 173 students were participated in this study and by providing the questionnaires to the students, the data was collected in a very precise manner. The Mini Nutritional Assessment Scale consists of various questions in the aspects of screening and assessing the nutritional status of an individual. Based on the total assessment, Malnutrition Indicator Score can be classified into malnourished (< 17 points), at risk of malnutrition (17 to 23.5 points) and normal nutritional status (24 to 30 points).

**Results:** Among the 173 students 43 (24.9%) students were males and 130 (75.1%) students were females. The mean age of the overall study population was observed to be 20.8 years. The mean weight of the overall study population was observed to be 57.2 kg. Majority of the students were observed with height 151-160cm (43.9%) followed by 161-170cm (28.9%). Most of the study participants were observed to be having no decrease in food intake (56.7%) followed by moderate decrease in food intake (38.7%) over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties. In this study, most of the students were observed with normal nutritional status (48%) followed by at risk of malnutrition (45.1%) based upon the Malnutrition Indicator Score for assessment of nutritional status.

**Conclusion:** In this study most of the study participants were observed with normal nutritional status followed by at risk of malnutrition. The students who are malnourished or at risk of malnutrition should focus on taking a balanced diet with sufficient nutrition intake may help them to maintain healthy life style. Proper nutrition should be maintained by consuming more amounts of proteins compared to carbohydrates, eating fruits and vegetables regularly is very important aspect of balanced diet. Sufficient fluid intake is also required for a healthy life style. Along with these aspects regular physical activity is much more beneficial to maintain the healthy BMI which improves fitness of the human body.

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### Introduction

Nutrition is the science that deals with food and nutrients that shows impact upon the health of an individual. Good food with good nutrition along with a required physical activity improves the physical and mental health [1,2]. The need for proper nutrition increases from childhood, peak in adolescence and decreases or diminishes as the teenagers become an adult. So, poor nutrition shows a great impact on the physical or mental development. Malnourishment can lead to decreased immunity levels, increased risk of developing the diseases or disorders, impaired physical or mental well being and reduced skill or productivity [3,4]. To deal with malnourishment, the diet should be rich in proteins compared to carbohydrates. Excessive intake of processed foods, fast foods or junk foods is mostly observed nowadays within the student population, which in future leads to the development of the metabolic disorders like diabetes. Nowadays, most commonly repeated mistake is skipping of the meals which also show a

severe negative impact on the body metabolism [5,6]. Hence, in this study we made an attempt to assess the nutritional attitude among the undergraduate and postgraduate students at an Indian Pharmacy college.

### Materials and Methods

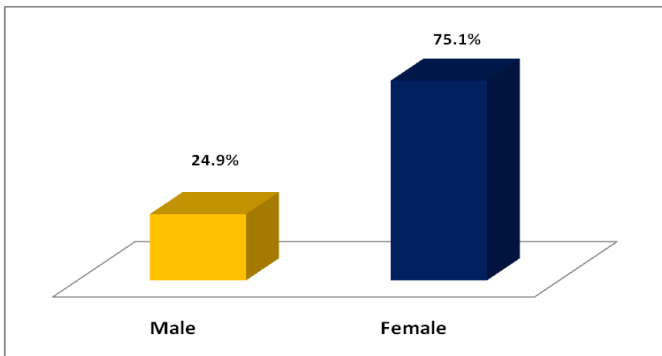
This was a prospective study conducted among the undergraduate and postgraduate students of GIET School of Pharmacy, Rajahmundry, Andhra Pradesh by using Mini Nutritional Assessment scale. Students of both genders with the age group between 19 to 23 years were included in this study. A total of 173 students were participated in this study and by providing the questionnaires to the students, the data was collected in a very precise manner. The Mini Nutritional Assessment Scale consists of various questions in the aspects of screening and assessing the nutritional status of an individual. Based on the total assessment, Malnutrition Indicator Score can be classified into malnourished (< 17 points), at risk of malnutrition (17 to 23.5 points) and normal nutritional status (24 to 30 points) [7-9].

## Results

Table 1 represents the gender wise categorization of the study population. Among the 173 students 43 (24.9%) students were males and 130 (75.1%) students were females.

**Table 1: Gender wise categorization of the study population**

Gender	Total (%)
Male	43 (24.9)
Female	130 (75.1)
<b>Total</b>	<b>173 (100)</b>

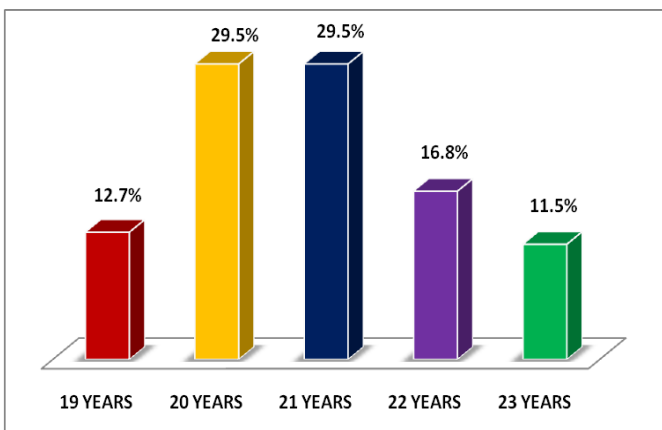


**Figure 1: Gender wise categorization of the study population**

Table 2 represents the age wise categorization of the study population. Among the 173 students, 22 (12.7%) students were of 19 years of age, 51 (29.5%) students were of 20 years of age, 51 (29.5%) students were of 21 years of age, 29 (16.8%) students were of 22 years of age and 20 (11.5%) students were of 23 years of age.

**Table 2: Age wise categorization of the study population**

Age in years	Male (%)	Female (%)	Total (%)
19	5 (11.6)	17 (13.1)	22 (12.7)
20	19 (44.2)	32 (24.6)	51 (29.5)
21	12 (27.9)	39 (30)	51 (29.5)
22	5 (11.6)	24 (18.5)	29 (16.8)
23	2 (4.7)	18 (13.8)	20 (11.5)
<b>Total</b>	<b>43 (100)</b>	<b>130 (100)</b>	<b>173 (100)</b>

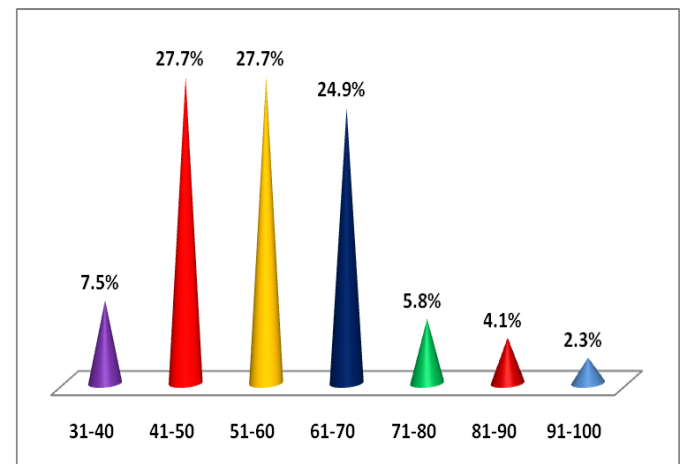


**Figure 2: Age wise categorization of the study population**

Table 3 represents the weight based categorization of the study population. Among the 173 students, 13 (7.5%) students were between 31-40kg of weight, 48 (27.7%) students were between 41-50kg of weight, 48 (27.7%) students were between 51-60kg of weight, 43 (24.9%) students were between 61-70kg of weight, 10 (5.8%) students were between 71-80kg of weight, 7 (4.1%) students were between 81-90kg of weight and 4 (2.3%) students were between 91-100kg of weight.

**Table 3: Weight wise categorization of the study population**

Weight in kg	Male (%)	Female (%)	Total (%)
31-40	0 (0)	13 (10)	13 (7.5)
41-50	3 (6.9)	45 (34.6)	48 (27.7)
51-60	14 (32.6)	34 (26.1)	48 (27.7)
61-70	18 (41.9)	25 (19.2)	43 (24.9)
71-80	5 (11.6)	5 (3.9)	10 (5.8)
81-90	2 (4.7)	5 (3.9)	7 (4.1)
91-100	1 (2.3)	3 (2.3)	4 (2.3)
<b>Total</b>	<b>43 (100)</b>	<b>130 (100)</b>	<b>173 (100)</b>



**Figure 3: Weight wise categorization of the study population**

Table 4 represents the height based categorization of the study population. Among the 173 students, 27 (15.6%) students were between 141-150 cm of height, 76 (43.9%) students were between 151-160cm of height, 50 (28.9%) students were between 161-170cm of height, 17 (9.8%) students were between 171-180cm of height, 3 (1.8%) students were between 181-190cm of height.

**Table 4: Height wise categorization of the study population**

Height (in cm)	Male (%)	Female (%)	Total (%)
141-150	0 (0)	27 (20.8)	27 (15.6)
151-160	3 (6.9)	73 (56.2)	76 (43.9)
161-170	23 (53.5)	27 (20.8)	50 (28.9)
171-180	15 (34.9)	2 (1.5)	17 (9.8)
181-190	2 (4.7)	1 (0.7)	3 (1.8)
<b>Total</b>	<b>43 (100)</b>	<b>130 (100)</b>	<b>173 (100)</b>

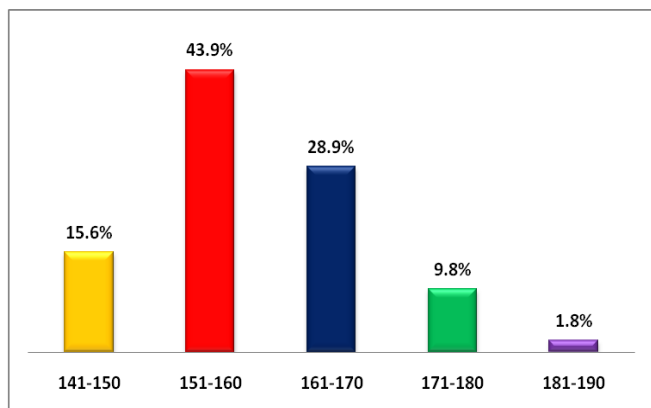


Figure 4: Height wise categorization of the study population

Table 5 represents the study population categorization based on Malnutrition Indicator Score. Among the 173 students, 83 (48%) students got score between 24 to 30 points which represents normal nutritional status, 78 (45.1%) students got score between 17 to 23.5 points which represents at risk of malnutrition and 12 (6.9%) students got score less than 17 points which represents malnourishment.

Table 5: Categorization of the study population based on Malnutrition Indicator Score

Malnutrition Indicator Score	Male (%)	Female (%)	Total (%)
Normal nutritional status (24 to 30 points)	22 (51.2)	61 (46.9)	83 (48)
At risk of malnutrition (17 to 23.5 points)	17 (39.5)	61 (46.9)	78 (45.1)
Malnourished (Less than 17 points)	4 (9.3)	8 (6.2)	12 (6.9)
<b>Total</b>	<b>43 (100)</b>	<b>130 (100)</b>	<b>173 (100)</b>

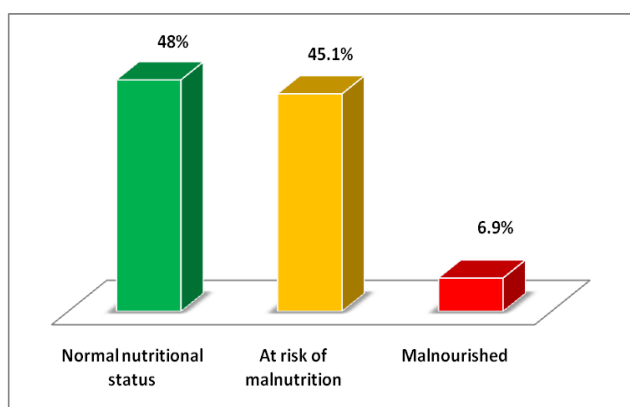


Figure 5: Categorization of the study population based on Malnutrition Indicator Score

## Discussion

In this study, most of the students were observed with an age of 20 and 21 years (29.5% in each) followed by 22 years (16.8%). The mean age of the overall study population was observed to be 20.8 years (male: 20.5 years; female: 20.9 years). Most of the

students were observed with weight 41-50 kg (27.7%) and 51-60 kg (27.7%) followed by 61-70 kg (24.9%). The mean weight of the overall study population was observed to be 57.2 kg (male: 64.1kg; female: 55 kg). Majority of the students were observed with height 151-160cm (43.9%) followed by 161-170cm (28.9%). The mean height of the overall study population was observed to be 159.3cm (male: 169.83cm; female: 155.90cm).

Most of the study participants were observed to be having no decrease in food intake (56.7%) followed by moderate decrease in food intake (38.7%) over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties. Majority of the study participants were observed to be with no weight loss (50.9%) followed by weight loss between 1-3kg (30%) during the last 3 months. All the students go out without any mobility issues.

Majority of the students have not suffered from any kind of psychological stress or acute disease (83.8%) in the past 3 months. Most of the students have no neuropsychological problems (94.2%). Majority of the students were observed with BMI 23 or greater (42.2%). Most of the student population doesn't have pressure sores or skin ulcers (94.8%). Majority of the students eat 3 meals daily (54.3%) followed by some students who eat 2 meals daily (42.2%). Most of the students were consuming at least one type (50.3%) of protein intake (dairy products/eggs/meat) and consume two or more servings of fruit or vegetables per day (59.5%). Most students were observed to have fluid intake more than 5 cups (43.9%) followed by 3 to 5 cups per day (40.5%). All the students were self-fed without any problem regarding the mode of feeding.

In comparison with other people of the same age, most of the students consider their health status as good (49.1%) followed by better (21.4%). Majority of the students were observed with mid-arm circumference (MAC) greater than 22 cm (87.3%) followed by MAC less than 21cm (6.9%). Most of the study participants were observed with calf circumference (CC) 31cm or greater (79.8%). In this study, most of the students were observed with normal nutritional status (48%) followed by at risk of malnutrition (45.1%) based upon the Malnutrition Indicator Score for assessment of nutritional status. This study was having very few limitations. It can be

performed in a large sample with the inclusion of undergraduate and postgraduate students of various colleges. This study can be extrapolated to various populations like pediatrics, geriatrics, pregnant women, lactating women etc. Very few persons might have provided the information with bias due to the variation in the level of understanding the questionnaire as well as the lack of self observation among them. This study can be more detailed if the duration of the study process was increased.

## Conclusion

For the healthy functioning of the human body, balanced diet with adequate nutrition plays a significant role in day to day life. In this study most of the study participants were observed with normal nutritional status followed by at risk of malnutrition. The students who are malnourished or at risk of malnutrition should focus on taking a balanced diet with sufficient nutrition intake may help them to maintain healthy life style. Proper nutrition should be maintained by consuming more amounts of proteins compared to carbohydrates, eating fruits and vegetables regularly is very important aspect of balanced diet. Sufficient fluid intake is also required for a healthy life style. Along with these aspects regular physical activity is much more beneficial to maintain the healthy BMI which improves fitness of the human body.

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