Original Article

Nutrition Status of Undergraduate Students in Pokhara University: An assessment via Body Mass Index

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ABSTRACT

Introduction: Nutritional status of adults is determined by body mass index. Body mass index is defined as the individual's body weight in kilograms divided by the square of his or her height in meters. The formula is universally used in health and medicine which produce a unit of measure in kg/m². Under nutrition is widely recognized as a major health problem in the developing countries of the world. Obesity is recognized as important risk factor for various non-communicable diseases.

Methods: A descriptive cross sectional study was conducted to assess the status of BMI among the health science students. A total 309 students were studying in health science programs (B Pharm, B Sc MLT, BPH and B Sc Nursing), out of them 125 students were in the first semester in School of Health and Allied Sciences and the study was carried out in 98 students of first semester and the sample size was selected purposively. The measurements to be made were described and informed consent was taken prior to the study.

Results: Among total students (98) the percentages of male and female were 58.2 and 41.8 respectively. The study showed 26% of students were underweight while 6% of them were overweight category. Among females, around 33% were underweight and only 4% of them were overweight. Similarly 15% and 10% males were underweight and overweight respectively.

Conclusion: Adults having a BMI value less than 18.5 are considered to be suffering from chronic energy deficiency. In this study, around one fourth (26 %) of the students were under nutrition having BMI value less than 18.5 while 6% of students were overweight. Under nutrition condition causes a variety of metabolic disturbances on individual health that may be acute or chronic and also resistance to infections is decreased and gastro - intestinal functions are disturbed and learning ability is adversely affected. So that early screening and public health intervention program are effective measures to control these problems.

Key words: Adult, Body mass index, Under nutrition, Over nutrition.

INTRODUCTION

Adult malnutrition is more widespread than is commonly recognized. Among different measures BMI is used as one of the effective measures in assessing individual and group nutritional status. Body mass index is defined as the individual's body weight divided by the square of his or her height. The formula universally used in health and medicine which produce a unit of measure of kg/m².[1] Under nutrition is widely recognized as a major health problem in the developing countries of the world. And obesity is recognized as important risk factor for various non-communicable diseases. This makes them less concerned towards the nutrient food intake and overall health. Health science students have to improve their knowledge throughout their lives. Consequently, they will probably suffer from various diseases in the future.

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Previous studies have indicated an increase in morbidity toll and on different causes of mortality with increased body mass index, especially death from cardiovascular disease in men and women.[2] The criteria that used are suggested by WHO guidelines.[3]

Table 1: WHO classification of overweight based on measurement of BMI (Kg/m²)

Nutritional Status	Kg/m²
Underweight	< 18.5
Normal weight	18.5-24.9
Overweight / pre - obese	25-29.9
Class I obesity	30-34.9
Class II obesity	35-39.9
Class III (morbid) obesity	> 40

METHODS

A descriptive cross sectional study was conducted with an objective to assess the BMI among health science undergraduates. A total 309 students were studying in health science stream (B Pharm, B Sc MLT, BPH and BSc Nursing Program), out of them 125 were first semester students in School of Health and Allied Sciences, Pokhara University. The study was carried out in 98 students and the sample size was selected purposively. The measurements to be made were described to the study group and informed consent taken. Body weight was measured to the nearest 100 gm using a balance beam weighing scale. Height was measured using a metal stadiometer and BMI was calculated.

The period of data collection was January to February 2010. Prior approval was taken from School of Health and Allied Sciences, Pokhara University, Nepal. The collected data were managed, analyzed and interpreted by using statistical package of social sciences (11.5).

RESULTS

The study included total 98 first year bachelor level health science students of Pokhara University, Kaski, Nepal. Among participants the percentage of male and female were 58.2 and 41.8 respectively. Further the detail results had included in the table 2 and figure 1.

The mean age of the students was 19.29 years. Likewise mean height and weight of the study was 1.60 m and 53.44 kg respectively. The average Body Mass Index of the students was 20.54 kg/m². Therefore the average number of students had normal BMI.

Table 2 : Distribution of age, height, weight and BMI in study subjects.

Discription	Range	Mean	SD
Age	17-26 years	19.29	1.51
Height	1.27-1.76 m	1.6	9.13
Weight	33-78 kg	53.44	9.81
BMI	15.24-27.31 kg/m²	20.54	2.53

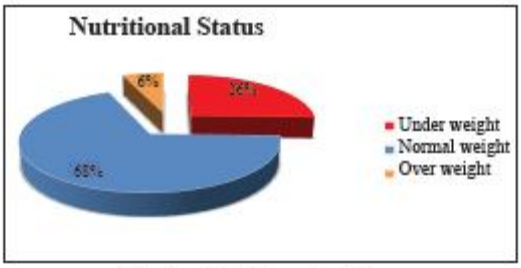

Fig 1 : Nutritional status

The study shows in aggregate majority (68 %) of the students having normal weight whereas some significant i.e 26 %to be underweight.

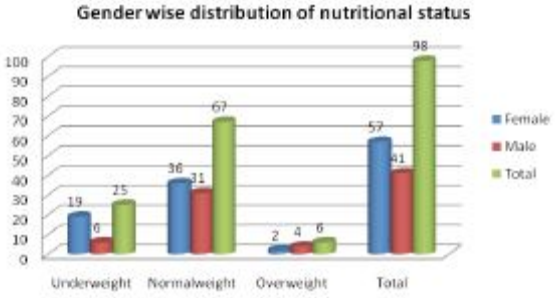

Fig 2 : Gender wise nutritional status

The bivariate analysis of BMI based on gender shows that majority of both male and female students had normal weight but notably 33 percentage of female students were underweight and 10 percentage of male were overweight.

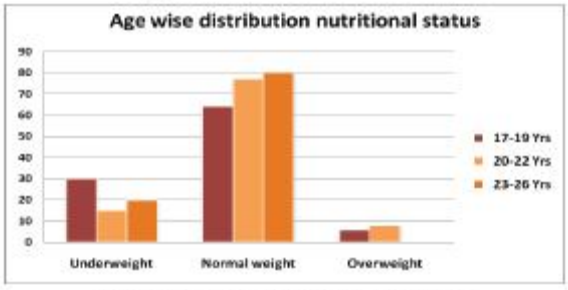

Fig 3 : Age wise nutritional status

Age wise the study revealed (30 percentage) of 17-19 years old adults had high under-nutrition while 15 percentage and 20 percentage of 20-22 years and 23-26 years students had under-nutrition respectively.

DISCUSSION

Adequate and in time food and nutrition are essential for proper growth and physical development to ensure optimal work capacity, normal reproduction performance, adequate immune mechanism, and resistance to infection. Inadequate diet may produce several forms of malnutrition even in adults. On the other hand, obesity caused by increased energy intakes and decreased physical activity is emerging as a major nutritional problem in adult and is associated with complications like hypertension, diabetes mellitus and coronary artery disease.[6]

The present study showed 26% adults were underweight and 6% of them were overweight. Around 33% of females were underweight and 4% of them were overweight similarly 15% and 10% males were underweight and overweight respectively. Gender based nutritional status is one of the major health indicator and is of high importance in the developing country like Nepal. Likewise age is another important variable to which nutritional status needs to be analyzed. The study was found to be supportive to NMSS 1998 especially in case of females (15- 49 yrs) which shows 27% of the women in Nepal have a BMI of less than 18.5 kg/m^2. Likewise world regional study made by Bailey KV et al. reported that highest proportion of adults with a BMI less than 18.5 is in the range of 30-70% in India, followed by sub-Saharan Africa (10-60%) and other Asian countries and islands (5-50%). And this study also supports the above findings of the study were made among the adults.

CONCLUSION

The study showed that majority of students had normal BMI value. However the prevalence of underweight i.e having low BMI was found to be in one fourth of students. This shows inclined direction to low BMI among the students and the status is found to be more inclined towards female students.

Thus students need to focus on adequate food habits in order to maintain their health status and effective learning and thus to contribute to the health of public.

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