

PJN

ISSN 1680-5194

PAKISTAN JOURNAL OF
NUTRITION

ANSI*net*

308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorpjn@gmail.com

Preliminary Survey on Nutritional Status among University Students at Malaysia

Nurul Huda and Ruzita Ahmad
Food Technology Division, School of Industrial Technology,
Universiti Sains Malaysia, Minden 11800, Penang, Malaysia

Abstract: The objective of this survey was to measure the Nutritional status through Body Mass Index (BMI) profile among Universiti Sains Malaysia (USM) main campus students. The data was randomly collected from students around USM lecture theaters during day time. A number of 624 students (male 264 and female 360) were involved in the survey. The result showed that the mean age, weight and height among the students were 21.42 ± 1.38 years, 55.65 ± 12.21 kg and 163.43 ± 8.89 cm, respectively. The mean BMI of all the samples was 20.81 ± 3.61 kg/m², with male students showing slightly higher BMI (21.84 ± 4.13 kg/m²) compared to female students (20.05 ± 2.96 kg/m²). Malay students showed the highest BMI, followed by Indian and Chinese students. The BMI's for the Malay, Indian and Chinese students were 21.01 ± 3.67 kg/m², 20.80 ± 3.72 kg/m² and 20.43 ± 3.19 kg/m², respectively. Based on the BMI result, about 61% of all the samples were in the normal range, 27% were underweight and about 12% were overweight or more. A higher percentage of the female students were in the underweight category (33%) compared to the male students (20%). Based on race, about 63% of the Malay students were normal weight, 25% were underweight and 12% in the overweight or more category. For the Chinese students, about 60% were normal weight, 30% were underweight and 10% in were in the overweight or more category. For the Indian students, about 57% were normal weight, 28% were underweight and 15% were in the overweight or more category. This preliminary data showed that there is a high percentage of underweight students among USM students. Further assessments need to be carried out to survey if these underweight students show symptoms of clinical problems related to nutritional deficiencies.

Key words: Nutritional status, BMI, anthropometry, university students

INTRODUCTION

Evaluation of the nutritional status of individuals and population groups is a tool of vital importance in public health and a feasible indicator of standards of living. There are many measures to assess the nutritional status of a population. Body Mass Index (BMI) is one of them. Assessment of nutritional status of individuals and population has attracted the attention of not only nutritionist and other biological scientist, but also economists and other social scientists with a view to understanding the health and socioeconomic status of population (Herrera *et al.*, 2003). BMI is expressed as the ratio of weight to height squared and can be a good parameter to grade Chronic Deficiency (CED) in adults. However, BMI should be used cautiously when classifying fatness or body composition. Using BMI for measuring amount of fat in a person's body may not be as accurate as originally thought (Pivarnik *et al.*, 2007). Universiti Sains Malaysia (USM) is one of the competitive universities in Malaysia. Ballard (2006) reported competitive universities foster eating disorder, especially among female students. Female university student typically desire to lose weight and are more likely than male students to diet or try other weight-loss practices.

Report on BMI status among university students in Malaysia is limited. Hence the objective of this survey is to measure the BMI profile among USM main campus students in Minden, Penang.

MATERIALS AND METHODS

The survey sample is based on basic anthropometry data (height and weight) among USM main campus students aged 18-26 years old. USM is one of the competitive Universities in Malaysia located at the Northern part of Malaysia. The data was collected randomly among students around USM lecture hall during lecture hours. A number of 624 students (male 264 and female 360) from three main race at Malaysia (Malay, Chinese and India) some number of International students were involved in the survey. The weight of the students without shoes were taken using a bathroom scale, while heights were measured using a commercial tape. The BMI was computed by dividing the weight (kg) by the square of the height (m). BMI (kg/m²) of the students was classified as follows: underweight (BMI < 18.5); normal (BMI 18.5-24.9); overweight (BMI 25.0-29.9) and obese (BMI > 30.0) (WHO, 1990).

Table 1: BMI profile among female and male USM students

| | Female | Male | Overall |
|--------------------------|-------------|-------------|-------------|
| n | 300 | 264 | 624 |
| Age (years) | 21.32±2.52 | 21.58±2.45 | 21.42±2.52 |
| Weight (kg) | 50.33±8.35 | 62.82±13.12 | 55.65±12.21 |
| Height (cm) | 158.41±5.99 | 169.74±8.29 | 163.43±8.98 |
| BMI (kg/m ²) | 20.05±2.96 | 21.84±4.13 | 20.81±3.61 |
| Underweight (%) | 32.78 | 20.07 | 27.40 |
| Normal (%) | 60.56 | 62.12 | 61.22 |
| Overweight (%) | 6.11 | 14.39 | 9.61 |
| Obese (%) | 0.56 | 3.41 | 1.77 |

Table 2: BMI profile among USM students sample according to race

| | Chinese | Indian | Malay | Other (International students) |
|-----------------------|-------------|-------------|-------------|-----------------------------------|
| n | 204 | 93 | 319 | 8 |
| Age (years) | 21.48±1.93 | 21.60±1.74 | 21.31±3.04 | 22.37±1.59 |
| Weight (kg) | 55.56±10.21 | 58.39±13.94 | 54.93±12.70 | 55.50±8.67 |
| Height (cm) | 164.70±7.89 | 166.96±9.84 | 161.07±8.98 | 166.25±5.92 |
| BMI kg/m ² | 20.43±3.19 | 20.80±3.72 | 21.01±3.67 | 20.00±2.19 |
| Underweight (%) | 29.81 | 27.96 | 25.33 | 25.00 |
| Normal (%) | 60.38 | 56.99 | 63.38 | 75.00 |
| Overweight (%) | 9.31 | 15.05 | 8.15 | 0.00 |
| Obese (%) | 0.49 | 0.00 | 3.13 | 0.00 |

RESULTS AND DISCUSSION

The overall mean age, weight, height and BMI of the students' samples were 21.42±2.52 years, 55.65±12.21 kg, 1.63±0.08 m and 20.81±3.61 kg/m², respectively. The mean BMI of male students were slightly higher (21.84±4.13 kg/m²) compared to female students (20.05±2.96 kg/m²) (Table 1). The mean BMI of USM students were slightly lower than the mean BMI among Universiti Putra Malaysia (UPM) students which were about 22.17±3.41 kg/m² (Quah and Zaitun, 2005). UPM is another Malaysian competitive University located at the central part of Malaysia. Higher BMI of male students compared to female students was also reported among Venezuelan university students (Herrera *et al.*, 2003) and among groups of college students at a large Midwestern University, US (Davy *et al.*, 2006). According to the BMI classification, most of the USM students were in the normal category (61.22%), followed by about 27% in the underweight category and about 12% in the overweight or more category. Davy *et al.* (2006) also reported that the number of underweight students were higher for females compared to males. Ming *et al.* (2005) reported that more female students than male students in a public university in Kuala Lumpur skipped lunch and dinner. It is commonly known that young women including female students typically desire to lose weight and young men typically want to gain weight. Women are more likely than male to diet or try other weight-loss practices. If men do attempt weight loss, they typically try exercise rather than dieting. Table 2 shows the mean age, weight, height and BMI of the students' samples according to race. Malaysia is a unique country where multiple ethnic groups (race) exist

in this country. The Malays race and other Bumiputera groups make up 65% of the population, Chinese race around 26%, Indians race around 8% and other unlisted race around 1%. The BMI of Malay students (21.01±3.67 kg/m²) was slightly higher than Indian, Chinese and others (international students, mainly Indonesian) which was 21.01±3.67, 20.80±3.72, 20.43±3.19 and 20.00±2.19 kg/m², respectively. Higher BMI among Malay students compared to Chinese students was also reported in UPM (Yaw *et al.*, 2005). They found that the mean BMI for female Malay students was 21.33±3.28 kg/m² and for female Chinese students was 20.30±2.37 kg/m².

According to the BMI classification, 63% of Malay students fall into the normal category, followed by 25% in the underweight category and 12% in the overweight or more categories. For the Chinese students, about 60% were in the normal category, followed by 30% in the underweight category and 10% in the overweight or more categories. For the Indian students, about 56% were in the normal category, followed by 28% in the underweight category and 13% in the overweight or more categories. The number of underweight students among all races in Malaysia is higher than Venezuelan students which was only about 11% (Herrera *et al.*, 2003). This percentage is also higher than the number of underweight young adults in United States which was only about 7% (Davy *et al.*, 2006).

Conclusion: This preliminary data showed that the prevalence of underweight among USM students was alarmingly high and this problem necessitates further nutritional status survey to determine if these underweight groups were at risk of nutrient deficiencies.

ACKNOWLEDGEMENTS

The authors wish to thank all the students of Nutrition (IMK 104) for their effort to collect the data. The authors also want to express gratitude to the cooperation given by Universiti Sains Malaysia (USM) for our research and the printing cost provided by the RU grant 1001/PTEKIND/ 815032.

REFERENCES

- Ballard, M.B., 2006. Competitive campus foster eating disorders. *The Student Newspaper of Wake Forest University*, Winston-Salem, North Carolina (October 19, 2006).
- Davy, S.R., B.A. Benes and J.A. Driskell, 2006. Sex differences in dieting trends, eating habits and nutrition beliefs of a group of Midwestern College Students. *J. Am. Dietetic Assoc.*, 106: 1673-1677.
- Herrera, H., E. Rebato, G. Arechabaleta, H. Lagrange, I. Salces and C. Susanne, 2003. Body mass index and energy intake in Venezuelan University students. *Nutr. Res.*, 23: 389-400.
- Ming, M.F., J. Surin, I. Yusoff, R. Mahat, T.F. Hee, W.M.A. W. Ibrahim and N.A. Ismail, 2005. Dietary habits of undergraduates in public university in Kuala Lumpur. Paper Presented at the 20th Scientific Conference of the Nutrition Society of Malaysia, 24-25 March 2005.
- Pivarnik, J., J. Ode and T. Oswald, 2007. Research shows BMI often not an accurate indicator of body fat. *Michigan State University newsroom* 5 March 2007. (available at www.newsroom.msu.edu).
- Quah, M.M. and Y. Zaitun, 2005. Relationship between the level of physical activity and indicator of obesity among a sample of university students. Paper Presented at the 20th Scientific Conference of the Nutrition Society of Malaysia, 24-25 March 2005.
- World Health Organization, 1990. Diet, Nutrition and the prevention of chronic diseases. WHO technical reports series No. 797. Geneva.
- Yaw, C.K., R.M. Yusof and M.A.K. Rohin, 2005. Nutritional status of female students at Univesiti Putra Malaysia, Serdang, Selangor. Paper Presented at the 20th Scientific Conference of the Nutrition Society of Malaysia, 24-25 March 2005.