Original Article

The Prevalence of Overweight and Obesity in Medical and Nursing Students of Institute of Medicine, Kathmandu

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Abstract

Introduction: Obesity has become one of the important global public health issues. It is significantly associated with the prevalence of diabetes, hypertension and coronary artery disease. Body Mass Index (BMI) assesses overweight and obesity based on statistical criteria.

Methods:A cross-sectionaldescriptive study was carried out in young male medical and female nursing students in the department of Clinical Physiology, Maharajgunj Medical Campus, Institute of Medicine, Kathmandu from January 2019 to March 2019. Subjects were selected by convenient sampling and BMI was calculated in 116 medical and nursing students.

Results: Out of 60 male medical students, 7(11.7%) were underweight, 48 (80%) were normal weight and 5(8.3%) were overweight. Similarly, out of 56 female nursing students, 1(1.8%) was underweight, 46(82.1%) were normal weight, 7(12.5%) were overweight and 2(3.6%) were obese.

Conclusion: The prevalence of overweight and obesity is increasing worldwide in all age groups. Young Nepalese people are also affected and are at risk of developing non-communicable diseases. Adaptation of healthy life styles and healthy diets could prevent overweight and obesity.

Key words: Body Mass Index (BMI), Obesity, overweight

Introduction

Obesity is a common health problem in most part of the world. World health organization (WHO) has reported that the prevalence of obesity is increasing worldwide including the developing countries[1]. Overweight and obesity have reached epidemic proportions throughout the world. In China, 21.8 percent of adults are overweight or obese[2].

Obesity, a preventable risk factor for cardiovascular diseases and diabetes is associated with impaired physical capacity, reduced economic productivity, increased mortality, and poorer reproductive outcomes[3].On one hand, overweight and obesity are increasing worldwide. On the other hand, the problem of undernutrition has long been a major public-health concern in developing countries. Recent studies in developing countries have, however, shown that a transition is occurring, and both undernutrition and obesity could co-exist[4].

BMI is defined as individual body weight in kg divided by square of his/her height in meter. BMI has been used by WHO as the standard of recording obesity since the early 1980s[1].BMIwas first introduced by Adolphe Quetelet, a Belgian astronomer, mathematician and statistician and thus was formerly referred to as the Quetelet's index. BMI is still a central aspect in the current weight-for-height guidelinesof WHO and of the US National Heart, Lung and BloodInstitute. It is a stature-independent measure of bodyweight and an alternate measure of total body fat. Although BMI represents an index of an individual's fatness, it is increasingly clear that BMI is a rather poor indicator of percent of body fat.It also does not capture information on the mass of fat in different body sites[5]. In spite of its

limitation, BMI is a good indicator of risk of morbidity and mortality in young and middle-aged adults. BMI can predict the underlying risks in a large population and can be used as an early warning sign that can suggest if lifestyle changes are required or not. A change in BMI over a short period of time is often used to measure change in one's lifestyle habits[6,7].

According to WHO expert committee, BMI is used to classify subjects into the categories 'underweight' (<18.5 kg/m2), 'normal weight' (>18.5 and <25.0kg/m^2), 'overweight' (≥25 kg/m^2), 'obese' (≥30 kg/^{2})andmorbid obesity (≥35 kg/m^2)[7,8].The objective of this study was to determine the prevalence of overweight and obesity in young medical and nursing students. A key target adopted by the WHO World Health Assembly in 2013 was to help limit mortality from non-communicable diseases controlling the worldwide increase in obesity. In European people the excess mortality associated with overweight and obesity is caused chiefly by adverse effects of adiposity on blood pressure, blood lipids, and diabetes. At any given BMI level, South Asians tend to have substantially more body fat than Europeans (leading to the emergence of the term thin-outside, fat-inside)[9].

Methods

A Cross-sectional descriptive study was conducted in the department of clinical physiology, Maharajgunj medical campus, institute of medicine, Kathmandu from January 2019 to March 2019.The subjects were selected by convenient sampling from undergraduate medical and nursing students. BMI was determined in 116 subjects aged from 17 years to 34 years with mean age 22.07(±3.28) years. Out of the total subjects, 60 were males and 56 were females. The weight and height of each subject was taken and BMI was calculated and the prevalence of overweight and obesity was observed. The male medical students were aged between 17 to 26 years, mean age 19.87(±1.51) years, and mean weight and mean height were 62.29(±10.13) kg and 171.48(±6.78) cm respectively. Similarly, the female nursing students were aged between 19 to 34 years, mean age 24.43(±3.01) years, and mean weight and height were 54.83(±8.38) kg and 156.67(±5.35) cm respectively. Frequency distribution and mean values were computed for descriptive analysis. Data analysis was done with SPSS version 24.

Results

Out of total 116 young subjects, 60 were male medical students and 56 were female nursing students. Among the total subjects, 8 (6.9%) were underweight, 94 (81%) were with normal weight, 12(10.3%) were overweight and 2(1.7%) were obese. Out of 60 male medical students, 7(11.7%) were underweight, 48 (80%) were normal weight and 5(8.3%) were overweight. Similarly, out of 56 female nursing students, 1(1.8%) was underweight, 46(82.1%) were normal weight, 7(12.5%) were overweight and 2(3.6%) were obese.

Table 1: BMI frequency and percentage of total subjects

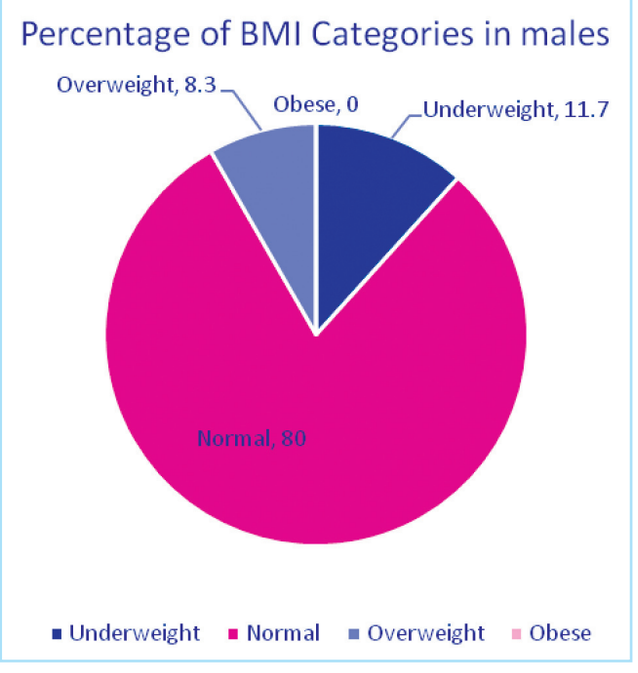
BMI Category	Frequency	Percent
Underweight	8	6.9
Normal	94	81.0
Overweight	12	10.3
Obese	2	1.7
Total	**116**	**100.0**

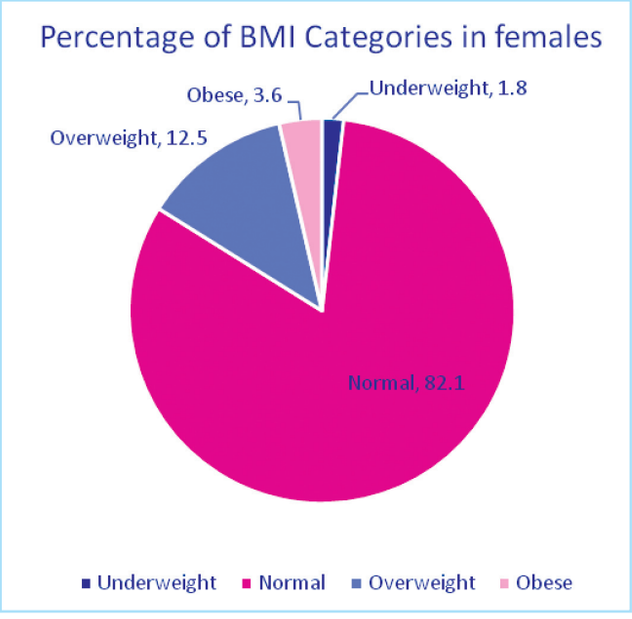
Table 2: age, height, weight and BMI of males

	Num	Min	Max	Mean	S.D.
Age	60	17	26	19.87	1.51
Height	60	154.5	188	171.48	6.78
Weight	60	46.9	88.3	62.30	10.13
BMI	60	16.42	27.65	21.11	2.62

Table 3: age, weight, weight and BMI of females

	Num	Min	Max	Mean	S.D.
Age	56	19	34	24.43	3.01
Height	56	143.3	168.8	156.68	5.36
Weight	56	41.3	82.0	54.89	8.39
BMI	56	16.15	33.44	22.35	3.24





Discussion

Although the majority of male and female subjects had normal BMI, the prevalence of overweight was 8.3% in male medical students but no obesity was observed among them. Similarly, 12.5% female nursing students were overweight and 3.6% were obese. Higher percentage of overweight and obesity in females could be because of more fat mass in females. Interestingly, we found 11.7% male medical students and 1.8% female nursing students underweight.

Obesity rates were higher in women who participated in the 2003 and 2007 risk factor studies compared to men. Although this gender difference requires further investigation, possible reasons include a relatively sedentary lifestyle, which is estimated to be 90% prevalent among urban women in Kathmandu[10].

A study conducted in Lalitpur district in 2014 showed that the prevalence of overweight was 12.2% in Nepalese adolescents[11].The prevalence of overweight and obesity among adolescents worldwide is high, and obesity is higher among boys[12].

In 1995, there were an estimated 200 million obese adults worldwide. However, by the year 2000 the number had grown to 300 million and has continued to increase since then. The trends for increasing obesity are broadly repeated throughout Western Europe and a similar rise has been observed in the United States. In 1986, 1 in 200 adults in America were morbidly obese; by 2004, the figure was 1 in 50. Currently, 1 in 5 adults are morbidly obese in America. In 2003, approximately 750,000 boys and 676,000 girls were obese in England[13].

Acommunity-based study demonstrated high prevalence of obesity and overweight among the productive population of urban Shivamogga[14].According to World Health Organization (WHO), more than 1.9 billion adults, 18 years and older, were overweight and of these over 650 million were obese in 2016. Similarly, over 340 million children and adolescents aged 5- 19 were overweight or obese in 2016. The worldwide prevalence of obesity nearly tripled between 1975 and 2016.Globally there are more people who are obese than underweight except in parts of sub-Saharan Africa and Asia. Overweight and obesity, as well as their related noncommunicable diseases are largely preventable. By adopting regular physical activity and choosing healthier foods can prevent overweight and obesity[15].

Conclusion

Prevalence of overweight and obesity is increasing worldwide including Nepal. Sedentary lifestyles and fat and sugar laden diets could be the possible risk factors for overweight and obesity. Interventions are needed to increase awareness about the risk factors of overweight and obesity in young age to decrease prevalence of non-communicable diseases.

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