Prevalence of Metabolic Syndrome Among University College of Science and Technology Students

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Background

Metabolic Syndrome (MetS) is a group of cardio-metabolic risk factors including central obesity, insulin resistance, dyslipidemia and hypertension. It is considered to be a leading cause for cardiovascular disease (CVD) and diabetes mellitus (DM) [1]. Also, patients with MetS have high mortality rate. MetS is responsible for approximately 7% of deaths worldwide, regardless of the cause, and for 17% of those related to CVD. It increases the risk of CVD by 34% and 16% for men and women, respectively [2].

Aims

The overall aim of this study is to estimate the prevalence of MetS among University College of Science and Technology (UCST) students using the definition proposed by National Cholesterol Education Program Adult Treatment Panel III (NCEP ATPIII), Gaza Strip.

Methodology

This study was a cross-sectional started in May, 2016 and finished in September, 2016. A total of 200 students (100 male and 100 age-matched female), aged at least 18 years. Sociodemographic data, and clinical data situation, life style status and dietary intake, and eating habits of the study population were taken by interview questionnaire. Anthropometric and biochemical evaluation were carried out. Collected data and biochemical analysis were analyzed using SPSS version 20.

Results

Male students were more active in their life style, more obese, hypertensive, hyperglycemia and hypertriglyceridemic than female students ($p \leq 0.05$). The most prevalent MetS parameters in the total sample were low High density lipoprotein cholesterol 31.0%, large waist circumference (WC) 14.0%, high Glucose 12.5%, high Triglycerides 8.5% and high blood pressure 6.0% (table 1). Further, the percentage of female students who had high WC was higher than thus in male students ($p \leq 0.05$) (table 1). Moreover, Based on NCEP ATP III definition, the prevalence of MetS in the total sample was 10.0%, with 8.0% of females and 12.0% males having MetS (figure 1). In addition, according to International Diabetes Federation definition, the prevalence of MetS in the total sample was 7.0% with 8% females and 6% males having MetS (figure 2). Furthermore, Obese students had the highest prevalence of elevated WC and elevated blood pressure compared to those in other students ($p \leq 0.05$). Obese students had a higher prevalence of MetS than found among students in the overweight or normal categories (figure 3). Moreover, students who consume more fasting food were more likely to develop MetS ($p \leq 0.05$).

Table (1): Percentage of NCEP-ATP MetS criteria of the participants by gender.

Variable	Male No.=100 (%)	Female No.=100 (%)	Total No.=200 % of Total	P- value
Low HDL-C	30.0%	33.0%	31.0%	0.648
High TGs	9.0%	8.0%	8.5%	0.800
High Glucose	14.0%	11.0%	12.5%	0.521
Large WC	9.0%	19.0%	14.0%	0.011*
High BP	7.0%	5.0%	6.0%	0.552

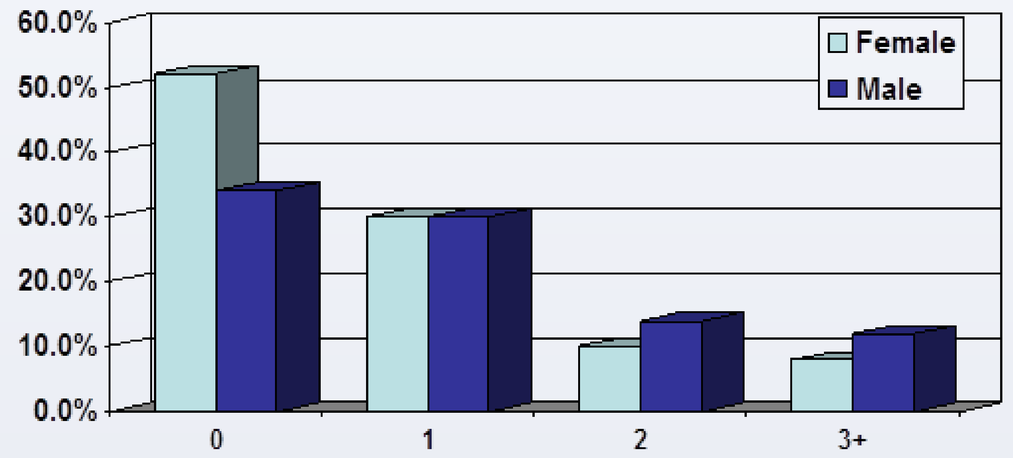

Figure (1): Number of NCEP ATP MetS criteria by gender

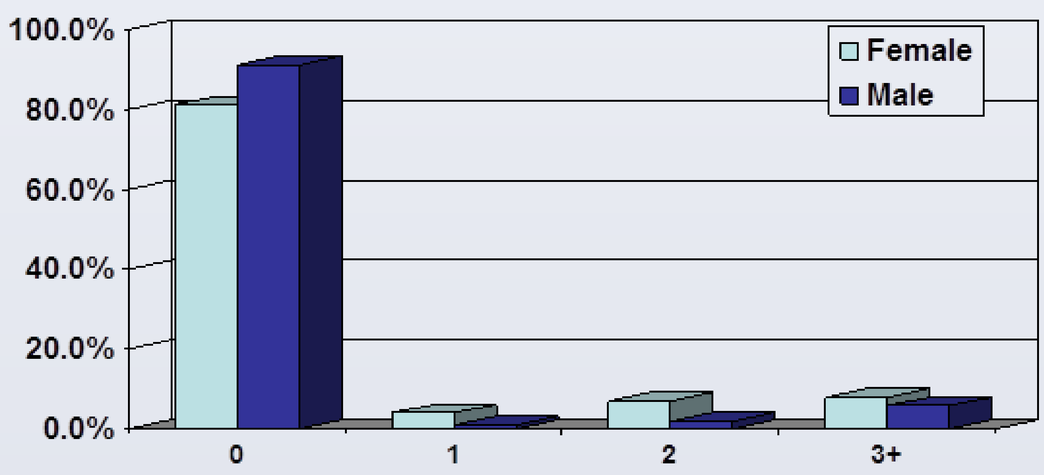

Figure (2): Number of IDF MetS criteria by gender

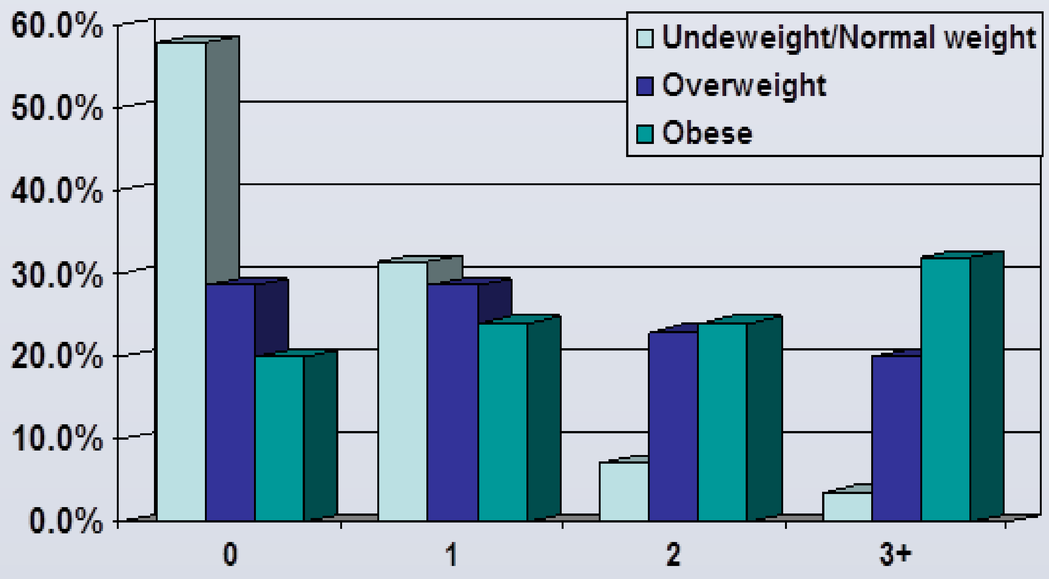

Figure (3): Number of NCEP ATP MetS criteria per BMI category

Conclusions

There is an evidence for the presence of MetS among students of UCST. It also appears that obesity contributes to the high incidence of MetS. Early detection, intervention for MetS risk factors & improve dietary habits, healthier life style & promote exercise contributes to reduce the risk of MetS development.

References

1. Grundy, SM., et al. (2005) " Diagnosis and management of the metabolic syndrome: an American Heart Association ". Circulation, 112:2735–2752.

2. Minino, AM., Heron, MP., Murphy, SL., & Kochanek, KD. (2007) "Deaths: final data for 2004". Natl Vital Stat Rep, 55:1–119.