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## Prevalence of metabolic syndrome among Sudanese young university students using three different criteria of WHO, IDF and NCEP-ATP III

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**Background:** During the last few decades, developing countries including Sudan experienced rapid socio-cultural transition associated with major changes in life style and eating habits. Such transition has been claimed for the rising rates of so-called metabolic syndrome (MetS) which is the leading cause to develop type II diabetes and cardiovascular diseases.

**Objective:** To find out the prevalence and distribution of a metabolic syndrome (MetS) and its risk factor among university students from Khartoum State, Sudan.

**Design and method:** A cross sectional study. Subjects were 1012 university students (680 females and 332 males) aged 16-25 years with no prior diagnosis of illness. Three international definitions of metabolic syndrome were used in this study (National Cholesterol Education Program Adult Treatment Panel III NCEP-ATP-III, International Diabetes Federation IDF, and World Health Organization WHO). Direct measurements were obtained for metabolic syndrome components; anthropometric screenings included measurement of height, weight, waist circumference (WC) and body mass index (BMI). The clinical screenings included measurement of blood pressure (BP) and determination of fasting lipid profile and glucose concentrations.

**Results:** Prevalence for MetS varied depending on the definition used. The prevalence was highest by using IDF criteria (8.4%) followed by NCEP ATP-III (7.5%) and WHO (6.1%). Among MetS components prevalence was highest for low levels of high-density lipoprotein (HDL) cholesterol (40.7%; NCEP) and lowest for impaired fasting glucose (8.1%; NCEP). Overweight and obesity was found in 15.3% and 3.1% of study population based on WHO criteria. The prevalence of abdominal obesity (large waist circumference WC) was 8.9% by NCEP. The prevalence of high blood pressure (hypertension) and pre-hypertension was 9.7% and 13.5% (WHO) respectively. Triglycerides prevalence was 8.4% based on NCEP definition, respectively. With the exception of low HDL-cholesterol, all MetS risk factors were more prevalent in males rather than females.

**Conclusions:** Our findings provide evidence for the high prevalence of MetS in Sudanese university students. These findings may have significant implications for both public health and clinical interventions directed at this group of age (young people), given the elevated lifetime risk for cardiovascular disease and lower survival for those with risk factors in young adulthood. University health programs that promote healthful lifestyle and avoidance of adult weight gain are recommended.

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