Using body composition techniques to determine the prevalence of overweight and obesity among school children 8-11 years of age in Namibia"

INTRODUCTION

Namibia is faced with the "double burden of malnutrition" with undernutrition coexisting with over nutrition in the population. Children are exposed to ultra-processed, energy-dense, nutrient-poor foods, which are cheap and readily available. Opportunities for physical activity have been reduced and more time is spent on screen based and sedentary leisure activities. The findings of the Namibia Demographic and Health Survey (NDHS 2013) among children under 5 years showed that 24 percent were stunted, 6 percent were wasted, 13 percent were underweight and 3 percent of children were overweight. However nutritional status data on older children aged 5-14 years was not included in NDHS 2013 necessitating for a study to be conducted among school children aged 8-11 years old from public urban schools in Windhoek to assess the magnitude of obesity and determine body composition using stable isotopes and BMI for age. Overweight and obese children are likely to stay obese into adulthood and develop non-communicable diseases at a younger age (World Health Organization, 2016).

METHODS

A cross-sectional study was conducted among randomly chosen school children aged 8-11 years. Permission to conduct the study was granted by Ministry of Health and Social Services Ethical Committee. A total of 155 school children including boys and girls were assessed for anthropometry and body composition. WHO reference tables (2006) were used to categorize obesity (BMI-for-age >+2SD), overweight (BMI-for-age >+1SD) and wasting (BMI-for-age <-2SD). The percentage of body fat was estimated by deuterium dilution technique and saliva samples were analysed using the Fourier Transform Infrared Spectrometry (FTIR) machine. Using body fat percentage, boys with percentage >25% and girls with percentage >30%, were considered to be overfat and at risk of cardiovascular metabolic disease (CMD) (Pablo et al, 2015). Data was analysed using the Statistical Package for the Social Science (SPSS) version 19.

RESULTS

The findings of the study revealed that the prevalence of overweight and obesity using BMI-for-age in girls was the same 18.4% while in boys it was 10.3% and 16.2% respectively. Seven percent of boys were wasted compared to almost 5% of the girls. Determining body fat percentage by deuterium dilution showed that girls had a significantly higher mean percentage fat mass 25.4 ± 9.2 than boys 3.3 ± 8.5 ($p<0.005$). Additionally, 50% of the children had high body fat using deuterium dilution method compared to the prevalence of overweight and obesity of 32% by BMI-for-age z-score. These results showed that BMI-for-age under estimates obesity.

CONCLUSION

Underweight and overweight among children needs to be tackled. An integrated approach to tackle all forms of malnutrition is of importance. The study was conducted with support from the Ministry of Health and Social Services and the IAEA, through the TC project NAM6042 "Applying nuclear techniques to design and evaluate interventions to reduce obesity and related health risks in children.

Country

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