

Problem of Obesity in Bosnia and Herzegovina and Use of Nuclear Techniques in Efforts to Counteract It

Undernutrition mainly occurs in vulnerable groups but poor dietary habits, lifestyle and food environment led to obesity among young children and adolescents that is recognised as one of the major public health challenges in both entities of Bosnia and Herzegovina. In Federation of Bosnia and Herzegovina entity 2% of children under five are underweight 2.6% wasted and 9.9% of children stunted but 17.7% are overweight. In Republic of Srpska only 0.5% of children under five are underweight while 20% are overweight. In Federation of Bosnia and Herzegovina rates of overweight among adolescents are even higher with 22.3% being overweight and 3.9% obese. In Republic of Srpska 21.4% of adolescents are overweight and 8.3% are obese.

Having in mind noncommunicable diseases that present major disease burden with cardiovascular diseases being the major cause of mortality both in Federation of Bosnia and Herzegovina and Republic of Srpska entity, actions have been taken to counteract obesity and related health risks. In order to acquire accurate information on adiposity that would help shape strategies and responses to prevent and control it, at international level ten countries of South-Eastern Europe joined a regional project supported by IAEA on application of nuclear techniques for assessment of body composition using the deuterium dilution technique.

Portable Fourier Transform Infrared (FTIR) Spectrometer for deuterium analysis has been provided to Bosnia and Herzegovina and three more participating countries by IAEA.

A joint framework protocol of pilot studies to establish reference and field methods to assess body composition and physical activity has been agreed and acquisition of ethical approvals in each country was the first step. Data collection of the pilot study is planned for September 2018 and in Bosnia and Herzegovina two pediatric nutrition counseling centers one in Mostar and one in Bjeljina have been selected for conduction of pilot study. The study will include 30-60 children aged 8-10 years. Deuterium dilution technique will be conducted and saliva samples analysed in the Entity Institutes of Public Health. Bioelectrical impedance and anthropometric measurements will be performed. Optionally assessment of physical activity and food consumption and dietary habits will be made as well. Preliminary results are expected at the end of 2018.

Possibilities to include assessment of body composition using deuterium dilution technique within the WHO supported Childhood Obesity Surveillance Initiative (COSI) on a subsample of children has been discussed. Assessment of body composition using nuclear techniques is a useful tool for generating accurate information on adiposity and thus can contribute to better understanding and shaping strategies to counteract obesity as well as to evaluation of existing and new interventions.

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