

Decoding Metabolic Risk: A Comparative Study of Body Mass Index using World Health Organization Classification and Asian Indian Guidelines with Biochemical Metabolites, A Pilot Study

Steffy Amit¹, Puja Dulloo²

¹Assistant Professor, ²Professor, Department of Physiology, Parul Institute of Medical Sciences and Research, Parul University, Vadodara, Gujarat, India

Abstract

Background: Obesity is a chronic condition leading to increased risk for premature cardiovascular diseases and mortality. The study aims to compare body mass index (BMI) classifications (as per the World Health Organization (WHO) and Asian Indian Guidelines (AIG), 2024) and gender in relation to fasting blood sugar (FBS) and lipid profile parameters, with the goal of gaining a better understanding and facilitating the early identification of at-risk groups. **Objectives:** To compare the association between BMI (as per WHO and AIG) and biochemical metabolites in gender-matched healthy individuals. **Materials and Methods:** A cross-sectional study involving 150 healthy individuals aged 21–40, excluding those with chronic medical conditions and BMI <18.5 kg/m², used body weight and height to calculate BMI and biochemical analysis (AGD 2020 clinical chemistry analyzer). **Results:** The study involving 150 subjects categorized into WHO BMI and AIG showed significant differences in triglyceride levels (in both genders) and FBS levels (in females). While statistical significance for very low-density lipoprotein (VLDL) was attained in the AIG classification only. However mild positive correlation with statistical significance was found between BMI and triglycerides (TGL), VLDL, and FBS. **Conclusion:** The comparative study of biochemical metabolites for BMI as per two different classifications yielded VLDL as one parameter, other than TGL and FBS, in a healthy Indian population. The findings need to be explored with a larger population before an agreement can be reached on using AIG as a valuable criterion for the early detection of metabolic syndrome in the Indian population.

Key words: Asian Indian Guidelines, body mass index, dyslipidemia, insulin resistance, lipid profile, metabolic syndrome, obesity