Describing Face Morphology among Population of Obese Adolescents Using Geometric Morphometric Analysis

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Abstract - Health problems associated with overweight and obesity are two of the growing health issues today, not only in the Philippines but also in the whole world. These conditions are caused by a combination of many factors, and the most important of which are physical inactivity and high caloric diet. The study aims to describe the morphological variations of the face of obese adolescents when compared to the underweight, normal weight and overweight individuals through landmark-based geometric morphometric analysis. A total of three hundred adolescents studying in MSU-Iligan Institute of Technology took part in the success of the study. Each subject’s entire face was photographed and their Body Mass Indexes (BMIs) were calculated. The subjects’ bust circumference, waist circumference, and hip circumference were also measured using tape measure. Results showed that there is a significant difference among all of the body weight classifications in terms of their weight, BMI, bust circumference, waist circumference, and hip circumference, but no significant difference in terms of height since adolescence stage is the stage where growth rate decreases upon reaching the adult stage. Landmark-based geometric morphometric analysis also revealed that there is a significant difference of the face of the obese adolescents when compared to the underweight and normal weight individuals but no significant difference between the obese and overweight individuals since overweight can also be due to excess fat accumulation, same as that of the obese ones.

Keywords - Body Mass Index (BMI), Geometric Morphometrics, Landmark-Based Analysis, Obesity, Overweight

Remark: The full paper may be found in www.inrit2014.com