Research

Female Body Anthropometric Variation and Breakthrough in Anthropology for Digital Modelling

(Descriptive-Analytic-Applied Study)

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ABSTRACT

Background: Body appearance is important becoming a trademark for some. Body beauty concept is different in times and places. Plastic reconstructive and aesthetic surgery has emerged to meet the challenge of improving body size and shape. Currently, body reconstruction in Indonesia refers to Caucasian parameters which may not be applicable. Moreover, patients can not comprehend the surgeon’s prediction of the surgical outcome visually making it more difficult for the surgeon to describe the operative result.

Objective: To understand the supernormal body concept in Indonesia, describing variation of normal and supernormal body indexes of Indonesians as a formulation base and to make a 3D digital modeling of normal and supernormal person. These models will be used as guidance for planning and predicting the reconstruction-aesthetic surgery in body contouring and as assisting tool for giving information visually to patients.

Material and Methods: This is an applied study. Questionnaires were distributed to a hundred male and female adults to obtain the concept of Indonesian normal and supernormal bodies. Ninety two students 17-25 years old who never had any surgery underwent body anthropometry measurement and body photography. They were then divided into 2 groups, normal and supernormal by expert juries assessment. The data of body index anthropometry were presented in tables, charts, and narration to describe normal and supernormal morphologic variations, then results between the 2 groups were compared statistically by t-test and discriminant test. Anthropometric and photographic data were used for making normal and supernormal 3D digital woman models by Poser and 3D Max programs.

Results: Criteria of body attractiveness by questionnaire were bright skin color, tallness, slimness, hour glass body shape, muscular arms, medium sized shoulders, hip, waist, breasts and buttocks, wide chest and slender legs. There were significant differences in body measurement between normal and supernormal groups including chest circumference, chest height, hip width, hip width index, and waist hip ratio (WHR) with $p<0.05$ by t-test. There were distinguishing parameters between normal and supernormal groups by discriminant test including chest dimension index, waist hip ratio (WHR), triceps skinfold and leg length. There were two 3D digital woman models for both normal and supernormal subjects which had measurements approximating the average values of each group.

Conclusion: There were significant differences in types and measurements between normal and supernormal Indonesian female bodies. Three dimension (3D) digital woman models can serve as tools for distinguishing normal and supernormal bodies visually.

Keywords: anthropometric body measurement, 3D digital modeling, reconstructive and aesthetic, body contouring