

## **Reliability, technical error of measurements and validity of instruments for nutritional status assessment of adults in Malaysia**

### **ABSTRACT**

The Third National Health & Morbidity Survey, Malaysia 2006 included nutritional status assessment of children. This study was to assess inter-and intra-examiner reliability, the technical error of measurement (TEM) and the validity of instruments for measuring weight, length and waist circumference. A convenience sample of 130 adults working in a selected office setting who fit the inclusion and exclusion criteria participated in the study. Two public health nurses, trained to follow a standard protocol, obtained the measurements. Weight was measured using Tanita digital weighing scale, 318, Japan (0.1 kg) and Seca Beam Scale, Germany (0.01 kg) weighing machines. Height was measured using Seca Bodymeter 206 Germany (0.1cm) and Stadiometer, Germany (0.1cm). Waist circumference was measured using Seca circumference tape, 206, Germany (0.1 cm). By comparison the inter-examiner reliability in descending order would be weight, height and lastly waist circumference. The intra-examiner reliability in descending order would be weight and height followed by waist circumference. Height measurement on average using test instrument reported that it was recording 0.4 cm higher than the reference instrument with upper limit and lower limit at 2.5 and 1.6 cm respectively. The technical error of measurement and coefficient of variation of weight and height for both inter-examiner and intra-examiner measurements are all within acceptable limit (below 5%). The findings of this study supports that weight, height and waist circumference measured in adults 30 years and above using Tanita digital weighing scale, 318, Japan (0.1 kg), Seca Bodymeter 206 Germany (0.1cm) and Seca circumference tape, 206, Germany (0.1 cm) are reliable and valid to be used in a community survey. Limiting the number of examiners especially for waist circumference measurements would yield higher degree of reliability and validity.