

Anthropometric correlates of total body fat, visceral adiposity and cardio-metabolic health risk: a community cohort study of urban, adult Sri Lankans

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Abstract:

INTRODUCTION: Anthropometric measurements (AM) are used as proxies for more direct measurements of body fat (BF) and its distribution. Several studies have examined the association between AM, BF and health outcomes such as cardiovascular risk (CVR). However, correlation of such simple AM and advanced measures of BF and the ability of these to predict CVR has not been studied in community follow up studies. **OBJECTIVES:** To examine the relationship between simple and advanced anthropometric measurements and their ability to predict cardiovascular risk factors in an urban adult Sri Lankan population. **METHOD:** The data was collected from a community cohort of adults (aged 42-71 years) selected by age-stratified random sampling from electoral lists of the Medical Officer of Health area, Ragama. Individual simple measurements [body weight, height, waist circumference (WC), hip circumference (HC)], advanced measurements [total body fat (TBF), visceral fat percentage (VFP) by Omron® body fat monitor] and cardiovascular risk factors [blood pressure, HbA1c, triglycerides, low-density (LDL-C), high-density-lipoprotein cholesterol (HDL-C) level, cardio-metabolic risk (CMR) (2 or more risk factors)] were assessed and their relationships were examined. **RESULTS:** 2155 individuals [1244 (57.7%) women, mean age 59.2 years (SD, 7.7)] participated. Complete data were available for 2000 (92.8%) [1147 (57.4%) women, mean age 59.2 years (SD, 7.7)]. Mean (SD) for anthropometric measurements were: males WC-85.9 (10.8) cm, HC-93.4 (8.0) cm, WHpR (waist-to-hip ratio) -0.92 (0.06), WhtR (waist-to-height ratio) -0.52 (0.06), BMI (body mass index) -23.5 (3.8) kg/m², TBF -27.0 (5.7)%, VFP -10.7 (5.2)%; females WC -84.8 (10.7) cm, HC-97.2 (9.5) cm, WHpR-0.87(0.08), WhtR-0.52 (0.07), BMI -25.4 (4.4) kg/m², TBF -38.2 (4.2)%, VFP-9.6 (4.9)%. BMI and WC correlated well with VFP (Pearson's r for males: 0.94 and 0.85, females: 0.96 and 0.78, respectively). In both sexes, increasing BMI, WC, WhtR, TBF and VFP, were significantly associated with higher risks of hypertension, diabetes, dyslipidemia and combined CMR (ROC area under the curve>0.6). **CONCLUSIONS:** In this cohort of urban, adult Sri Lanka, simple anthropometric measurements correlated strongly with VFP, and were equally good in predicting cardiovascular risk factors.

Description:

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