

Abstract

The present study was designed with the objective of determining the distribution and determinants of abdominal obesity in an adult population in the district of Colombo. It also aimed at deriving risk thresholds of anthropometric measures as a screening tool in predicting an individual of having obesity-related-CHD risk factors. In order to achieve these objectives, a community based cross sectional study was carried out in the district of Colombo.

One thousand and four hundred subjects were selected for the main study using a multi stage stratified probability sampling technique. Distribution of the sample represented the district of Colombo by age, sex and sector. As a second component, a sub sample of the study population was selected.

Information on determinants of abdominal obesity in relation to demographic and socio-economic characteristics, pattern of migration, risk behaviours related to abdominal obesity (level of physical activity, quality of diet, selected household and individual dietary practices) was collected in all participants of the main study, using an interviewer administered questionnaire. Waist circumference, hip circumference, weight, height and supra-iliac skin fold thickness were also assessed. In addition, in the sub sample, a biochemical assessment of serum lipid levels and plasma glucose, and a measurement of blood pressure were carried out.

The study revealed that the prevalence of abdominal obesity in the district of Colombo was 34.9 per 100 population (95% CI: 32.5-37.4). Age specific prevalence was higher among females and was seen to increase progressively with increasing levels of urbanization in all age groups. Overweight was found to co-exist with abdominal obesity in 31.9% of the study population. In addition, a higher prevalence of abdominal obesity was noted in 8.4% of the study population, despite normal BMI.

Of the many correlates of abdominal obesity, age over 34 years, residence in urban sectors and currently married status were the significant determinants of abdominal obesity common to males and females in the multivariate analysis. In addition, among females, religion was a significant determinant. Instead in males, a higher level of

education and monthly household income were key determinants, signifying the association of abdominal obesity with higher socio-economic status. Although a significantly higher proportion of abdominal obesity was seen among those engaged in sedentary type of work related to current employment, it was not identified as a key determinant in the final logistic regression model. However, level of overall physical activity related to transportation, occupation, household chores and leisure time activities was a significant determinant in both males and females. Despite an inconclusive relationship between abdominal obesity and the overall quality of diet, consumption patterns of selected food items (whole grain products, whole eggs and products, deep fried food) and dietary practices (eating out, large portion sizes, frying as the first choice of cooking method) were significantly associated with abdominal obesity.

Of the many anthropometric measurements, waist circumference was associated with most of the parameters of obesity-related-CHD risk factors (hypertension, diabetes, dyslipidaemia) compared to BMI. In addition, waist circumference was a significant predictor of the risk of an individual having at least one obesity-related-CHD risk factor in the logistic regression models of both males ($\beta=0.046$) and females ($\beta=0.024$). Conversely, BMI was not a significant predictor of this risk in females. Among males, such risk associated with a cut off value of BMI of 23 kg/m^2 (OR=1.32) corresponded with a cutoff value of waist circumference of 84.6 cm. Optimal cutoff values of these anthropometric measures as a screening tool in identifying obesity-related-CHD risk, were derived by using ROC curves. Accordingly, the cut off values of waist circumference were identified as 88.5 cm in males and 82 cm in females while that of BMI in males was 23 kg/m^2 .

In the backdrop of a demographic and epidemiological transition taking place in Sri Lanka, some risk factors and related risk behaviours were found to cluster in population groups where prevalence of abdominal obesity was relatively high. In addition, abdominal obesity was identified as an important predictor of one or more obesity-related-CHD risk factors. Thus, this study clearly demonstrated that waist circumference is a simple practical tool that can be used in identifying such risk groups and would be a useful measure to be included in a multiple risk factor surveillance programme for CHD.