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Beyond BMI: What Drives Central Adiposity in Urban Low-Income Malaysian Adults with NCDs?

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Introduction:

Central adiposity is a stronger predictor of cardiometabolic risk than BMI, yet its determinants among urban low-income adults with non-communicable diseases (NCDs) remain unclear. This study examined sociodemographic, dietary, metabolic, and food insecurity (FI)-related factors associated with central adiposity in this population.

Methods:

A cross-sectional study was conducted among urban low-income adults in the B40 income category who had at least one NCD and attended two government health clinics in Selangor. Central adiposity was defined using Asian-specific waist circumference (WC) cut-offs (≥ 90 cm for men and ≥ 80 cm for women). Sociodemographic data were collected using structured questionnaires; lifestyle behaviours, FI, and dietary intake were assessed using validated tools. Dietary patterns (DP) were derived using principal component analysis. Anthropometric and biochemical data were obtained from medical records. Binary logistic regression analysis was used to identify factors independently associated with central adiposity.

Results:

Among 339 participants, 88.2% had central adiposity. Participants with central adiposity were more likely to be female, had more elderly household members, more family members with disabilities, and NCDs (all $p < 0.05$). Although overall FI prevalence was 28.6% and did not differ between groups, coping-related FI was more prevalent among those with central adiposity ($p < 0.05$). Participants with central adiposity also exhibited higher random blood glucose levels and lower HDL, total, and LDL cholesterol levels (all $p < 0.05$); however, despite lower LDL levels, 62.1% failed to achieve risk-based LDL-C targets. A "dairy, eggs, and fast food" DP remained independently associated with central adiposity after adjustment (OR=2.066, 95% CI: 1.122-3.804, $p = 0.020$). However, adherence to this DP was associated with lower estimated CVD risk ($p < 0.05$).

Conclusion:

Central adiposity is highly prevalent among urban low-income adults with NCDs and is associated with gender, household burden, coping-related FI, and an energy-dense DP. This underscores the importance of incorporating WC into CVD risk assessment in socioeconomically vulnerable populations.