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TITLE: Independent association of visceral adiposity index and cardiorespiratory fitness with clustered cardiovascular disease risk in youth

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ABSTRACT (upto 300 words)

This study examined the independent associations of visceral adiposity index (VAI) and cardiorespiratory fitness (CRF) with clustered cardiovascular disease risk (CVD_r) among Nigerian youth. A cross-sectional sample of 403 adolescent (202 boys) aged 11-19 years from selected secondary schools in Kogi East, North Central Nigeria participated in the project. Participants were evaluated for VAI, CRF and CVD_r. A clustered CVD_r score was constructed from the standardized residuals of high-density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C), total cholesterol (TCL), triglycerides (TG), systolic blood pressure (SBP), and diastolic blood pressure (DBP). Regression models controlling for sex, age and maturity status assessed the association of VAI and CRF with clustered CVD_r. Fitness was negatively related to the dependent variable ($\beta = -0.268, P < 0.001$) and VAI was positively associated with CVD_r ($\beta = 0.379, P < 0.001$). With additional adjustment of either CRF or VAI, the independent association with the dependent variable persisted. After controlling for all the variables in the model VAI and CRF were significantly associated with CVD_r ($P < 0.001$).

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The combination of both variables explained 19% of the variation in the dependent variable, with VAI demonstrating greater explanatory capacity. The odd of an adolescent with elevated VAI being at risk of clustered CVD was 4.7 times that of a peer with favorable level of VAI. The likelihood of an unfit adolescent developing clustered CVD_r was 2.1 times that of a fit counterpart. Both VAI and CRF were independently associated with clustered CVD_r in Nigerian youth. The findings of this study suggest that public health promotion efforts focusing on CVD risk factor reduction in adolescents should also include healthy diet and participation in aerobic-type physical activity program.

BIOGRAPHY (upto 200 words)

Musa earned his Ph.D. from Obafemi Awolowo University, Nigeria. He is the Coordinator, Human Performance Laboratory, Department of Human Kinetics and Health Education; and Director of Quality Assurance, Kogi State University, Nigeria. He has over 100 publications that have been cited about 500 times, and his publication h-index is 10. He has been serving as an editorial board member of several reputed journals. His area of research interest is Physical activity and pediatric health.