Diet, Lifestyle, and Metabolic Syndrome in Rural and Urban Tanzania: A Cross-Sectional Study

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- Contrary to MetS studies in EAC/SSA, no significant differences in the prevalence in rural vs urban
- All forms of obesity are more prevalent in urban, dyslipidemia is more common in rural than urban.
- No significant association was seen between diet and MetS, but, the 3rd dietary cluster was protective against truncal obesity.

BACKGROUND

Metabolic Syndrome (MetS), a predictor of Cardiovascular Diseases (CVDs) and Type 2 Diabetes Mellitus (T2DM) is becoming more common in LMICs including Tanzania with higher adverse effects compared to High-Income Countries (HICs). Historical epidemiological differences in rural and urban are rapidly disappearing due urbanization, migration and increased interactions, technological changes, and rapid population growth (Nsabimana P et al,2023, Sauer CM et al,2021).

Objective: In this study we investigated the differences in the prevalence of MetS and its risk factors in urban and rural Tanzania considering diet and lifestyle.

METHODS

Study Design: Cross-sectional study.
Study population: 379 adults aged 44-65 in the selected urban and rural districts.
Exposures: lifestyle factors including dietary patterns and the level of physical activity
Outcome variable: Metabolic Syndrome defined as a combination of truncal obesity and any other two factors (hypertension or dyslipidemia) as per the International Diabetes Federation (IDF) criteria.
Data analysis: Descriptive and multivariate logistic regression, for diet – hierarchical clustering on PCA
Intermediate outcome variables: Diabetes, truncal obesity, hypertension, dyslipidemia
Confounders: Sex, age
Effect modifiers: HIV infection, socioeconomic status – the level of education, occupation, income, alcohol intake, smoking
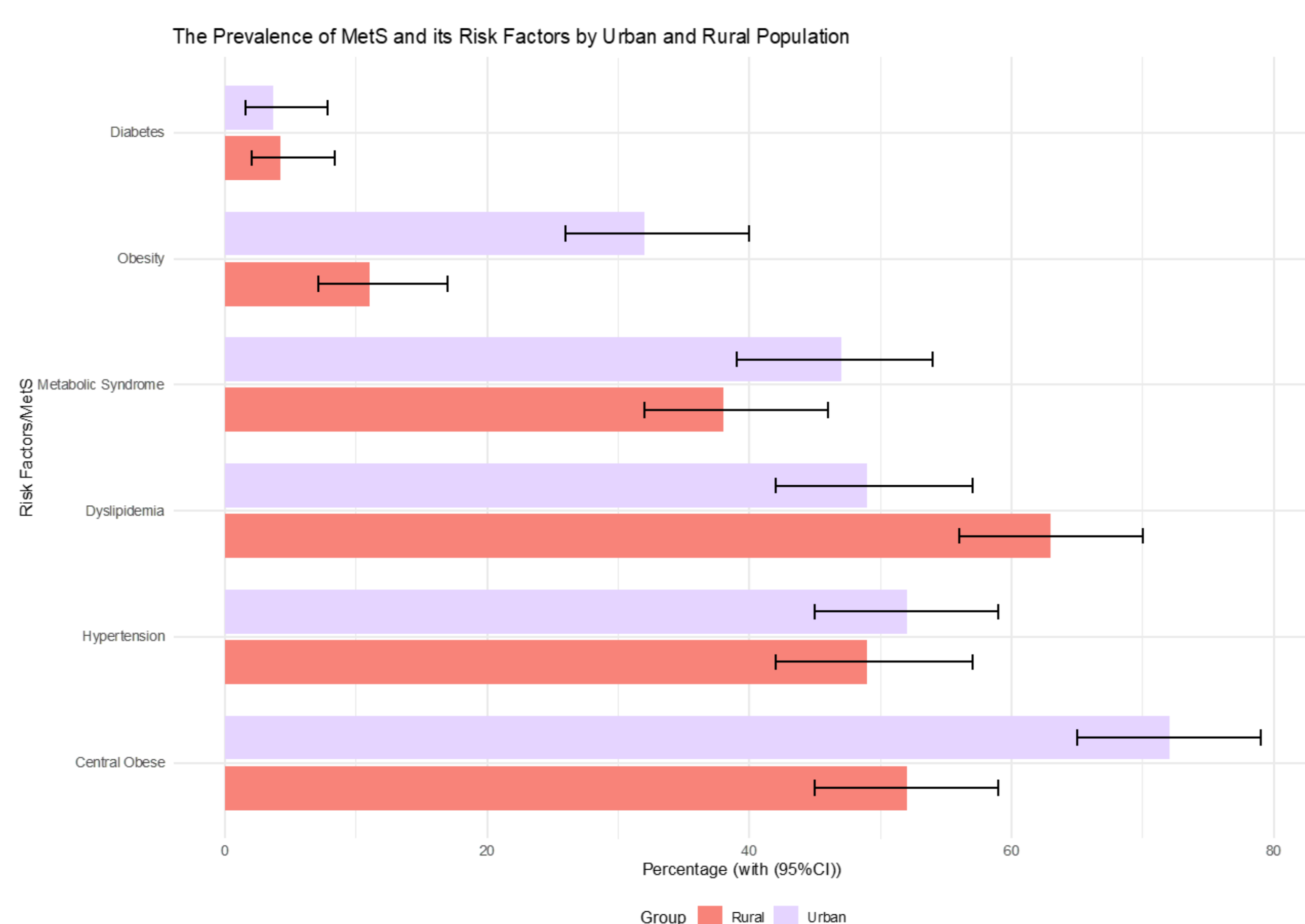
RESULTS

Figure 1: A comparison of the prevalence of MetS and its risk factors in urban and rural Tanzania

- No difference in the prevalence of MetS between the two sites
- All forms of Obesity were more prevalent in urban
- No differences in Hypertension between rural and urban

THE CORRELATION SCORES OF THE COMPONENTS OF METS BY DISTRICT AND GENDER
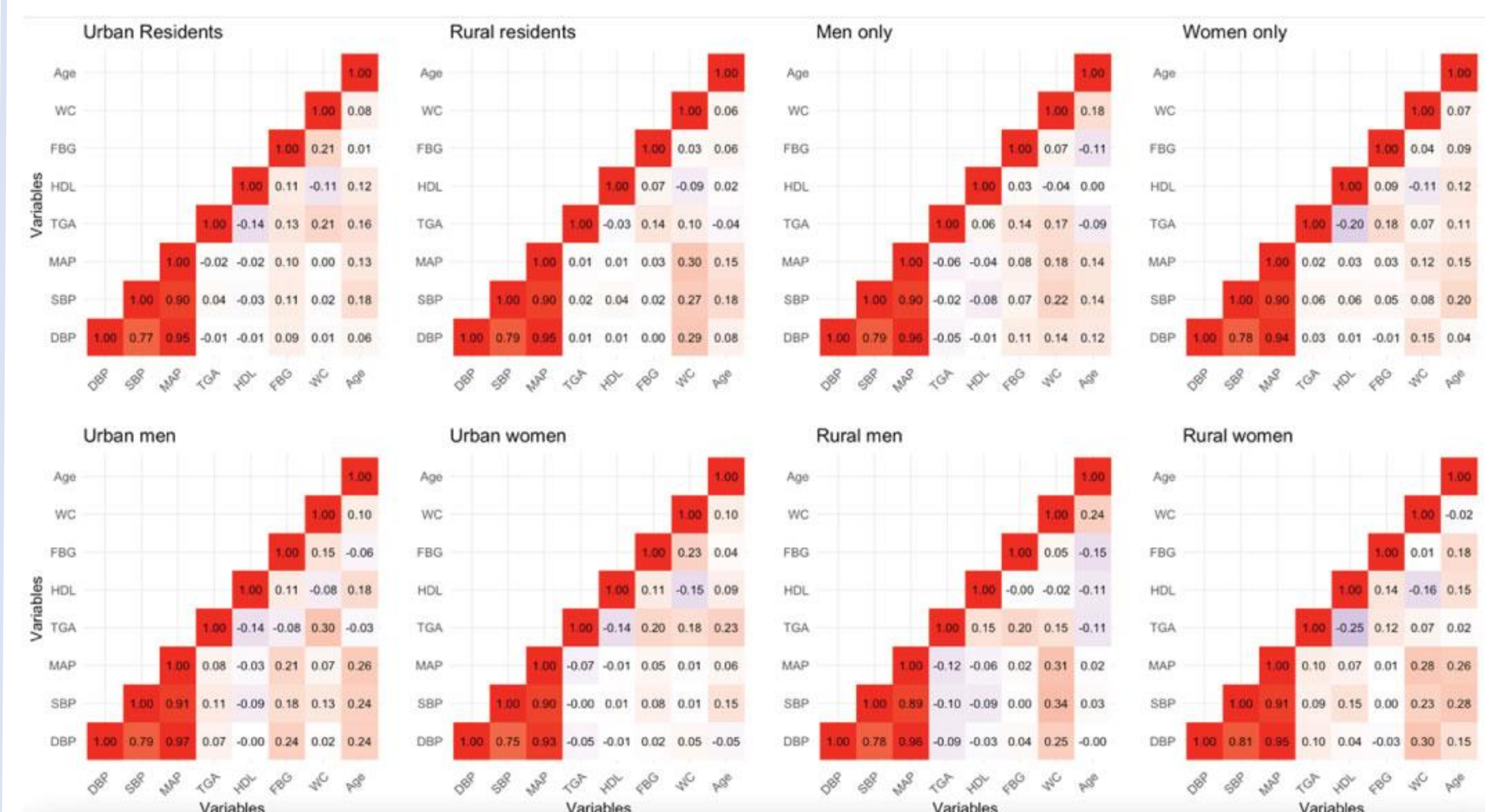

Figure 2: Different correlations between the components of METS by gender and location,

- the correlation between age and blood pressure measures in rural differ from that seen in urban as well the effects of WC on BP measures

Logistic regression:

- Central obesity associated with Hypertension, never smoked have an increased risk of MetS
- Dietary cluster 3 protective against obesity, underweight increases chances of dyslipidemia

DISCUSSION

- The stability of the components of MetS in predicting the risk of CVD and T2DM ~ possible underestimation of the burden in both rural and urban.

- High prevalence of dyslipidemia as seen previously in EAC countries, rural more affected as previously reported in Western Tanzania (Kavishe et al, 2019).

CONCLUSIONS

Our data shows varied distribution of the components of MetS based on the IDF criteria which has implications on the choices of CVDs risk indicators in transitioning communities. It highlights the need for further studies to develop realistic indicators in Tanzania considering the socio-economic transitions and the distribution of the risk factors.

ADDITIONAL INFORMATION

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