ASSOCIATIONS BETWEEN CARDIO-METABOLIC ABNORMALITIES AND ADIPOSITY BY GENDER AND POPULATION GROUPS IN SOUTH AFRICA

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BACKGROUND

- **Overweight and obesity** → key risk factors for diabetes, hypertension and dyslipidaemia
- **Epidemic of overweight and obesity in South Africa** → contributes to the high and rising burden of these cardio-metabolic diseases
- **However, adiposity may be differentially associated with cardio-metabolic diseases** → by gender and ethnicity

AIM

To determine whether adiposity, calculated by body mass index (BMI), was differentially associated with diabetes, hypertension and hypercholesterolaemia by gender and population groups in the Heart and Stroke Foundation South Africa's screening programme.

METHODS

Study Population : ≥18-year-old adults

Study Design : Cross-sectional
Conducted in 5 out of 9 provinces
Urban and semi-urban areas

Data Collection	: 'Cardiovascular Health Check' questionnaire
Clinical	: Anthropometry, blood pressure (BP)
Biochemical	: Point-of-care random blood glucose (RBG), Cholesterol assessments

Data Analysis : Descriptive statistics
: Logistic regressions

DEFINITIONS

BMI : underweight: $<18.5 \text{ kg/m}^2$
normal weight: $18.5\text{-}24.9 \text{ kg/m}^2$
overweight: $25\text{-}29.9 \text{ kg/m}^2$
obesity: $\geq 30 \text{ kg/m}^2$

Hypertension : systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg or the use of antihypertensive agents

Diabetes : RBG ≥ 11.1 mmol/l or known diabetes

Hypercholesterolaemia: total cholesterol ≥ 5 mmol/l

RESULTS

Table 1: Distribution of adiposity by gender and population group

	UNDERWEIGHT	NORMAL WEIGHT	OVERWEIGHT	OBESE
MEN (N=2482)	N=59	N = 798	N = 987	N = 638
Age in years, mean ±SD	40.7 ±18.8	45.0 ±17.8	49.1 ±15.8	49.1 ±14.1
Prevalence, %	2.4	32.1	39.8	25.7
WOMEN (N=5213)	N = 81	N = 1322	N = 1530	N = 2280
Age in years, mean ±SD	46.8 ±22.1	46.2 ±18.9	49.6 ±16.7	49.3 ±14.1
Prevalence, %	1.6	25.4	29.3	43.7
POPULATION GROUP, %	N = 140	N = 2120	N = 2517	N = 2918
Black (n = 2761)	1.3	23.2	28.0	47.5
Coloured (n = 1773)	1.5	22.4	33.1	43.0
White (n = 1592)	2.1	34.2	36.1	27.6
Indian (n = 1238)	3.0	34.7	36.7	25.6

Figure 1: Prevalence and odds of diabetes by BMI category and gender

Figure 4: Prevalence and odds of diabetes by BMI category and population group

Figure 2: Prevalence and odds of hypertension by BMI category and gender

Figure 5: Prevalence and odds of hypertension by BMI category and population group

Figure 3: Prevalence and odds of hypercholesterolaemia by BMI category and gender

Figure 6: Prevalence and odds of hypercholesterolaemia by BMI category and population group

CONCLUSIONS

Men vs. women:

Lower obesity levels but similar to higher prevalence of diabetes and hypertension → Suggests a greater susceptibility in men for these cardio-metabolic abnormalities at a particular adiposity level

Black population:

Direct, but not significant, association of underweight with diabetes
→ ?Early life factors

Indian population:

Greater propensity for diabetes and hypertension per BMI category
→ Influence of other risk factors e.g. genetics