



HAL
open science

Hypertension is more strongly associated with waist circumference than body mass index in an adult population of the French West Indies

André Atallah, Philippe Carrère

► **To cite this version:**

André Atallah, Philippe Carrère. Hypertension is more strongly associated with waist circumference than body mass index in an adult population of the French West Indies. 2012. hal-00739787

HAL Id: hal-00739787

<https://hal.univ-antilles.fr/hal-00739787v1>

Preprint submitted on 9 Oct 2012

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HYPERTENSION IS MORE STRONGLY ASSOCIATED WITH WAIST CIRCUMFERENCE THAN BODY MASS INDEX IN AN ADULT POPULATION OF THE FRENCH WEST INDIES

A. Atallah^{a,b}, P. Carrère^{a,c}

Objective

To assess and specify the relationship between hypertension and general obesity and/or abdominal obesity in an adult Caribbean population.

Design and method

CONSANT was a cross-sectional study carried out in 2007 on a representative sample of the adult Guadeloupean population. Included were 1,005 subjects aged 25-74 years, drawn through stratified random sampling. Diagnosis of hypertension was carried out over 2 consultations, with a total of 6 blood pressure measurements. The diagnosis thresholds are a blood pressure of 140/90 mmHg for hypertension, a Body Mass Index (BMI) of 30 kg/m² for general obesity, and Waist Circumference (WC) among men of 102 cm and among women of 88 cm for abdominal obesity (European Society of Hypertension - ESH - cut off points).

Results

Relationship between High Blood Pressure and BMI and/or WC:

| | HBP risk | |
|------------------------------|----------|--------------------|
| | OR * | p |
| Model 1 | | |
| BMI \geq 30/BMI<30 | 1.87 | 0.002 |
| Model 2 | | |
| WC \geq ESH/WC<ESH | 2.23 | < 10 ⁻³ |
| Model 3 | | |
| BMI \geq 30/BMI<30 | 1.31 | 0.282 |
| WC \geq ESH/WC<ESH | 1.96 | 0.006 |
| Model 4 | | |
| BMI (per kg/m ²) | 0.96 | 0.855 |
| WC (per cm) | 1.05 | 0.001 |

*: OR adjusted for sex, age, physical activity, alcohol or tobacco consumption, family status, residence ownership, education level, social class.

The multivariate logistic regression analysis shows that the ORs for hypertension related to WC are higher than the ORs for hypertension related to BMI, and at lower p-values, regardless of the model tested:

- models separately integrating BMI (Model 1) or WC (Model 2) as binary variables;
- model simultaneously integrating BMI and WC as binary variables (Model 3);
- model simultaneously integrating BMI and WC as continuous variables (Model 4);
- models separately integrating BMI and WC categorized by quartiles as ordinal variables and model simultaneously integrating BMI and WC categorized by quartiles as dichotomized variables (data not shown).

Areas under the ROC curves are estimated at 0.6432 for BMI and 0.6948 for WC (p < 10⁻⁴).

Analyses by sex yield similar results in men and women.

Conclusion

In this sample, the association between hypertension and waist circumference was stronger and more significant than the association between hypertension and body mass index. This appears to confirm the importance of measuring waist circumference and encouraging its widespread practice.