

# What is the impact of medication beliefs and illness perceptions on hypertension control and medication adherence?

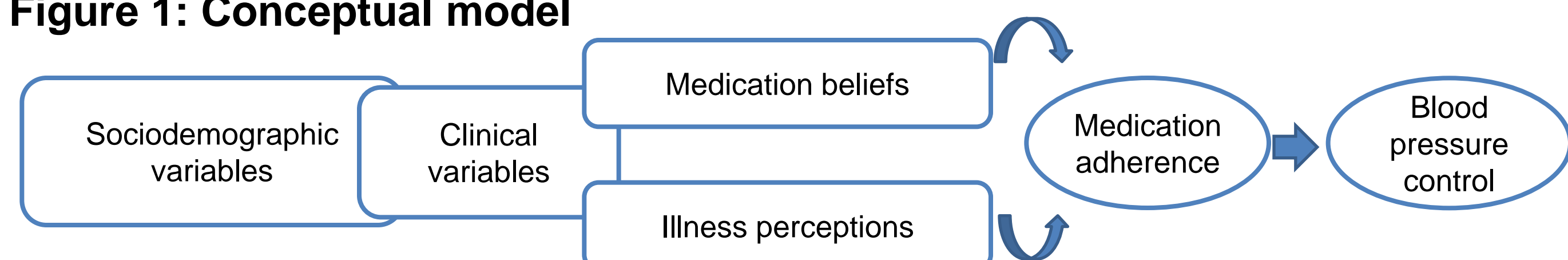
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## Introduction

According to some recent studies, african natives seem to have higher blood pressure (BP) values and lower medication adherence rates than caucasian individuals<sup>1</sup>. On the other hand, beliefs about medication and perceptions about hypertension (HT) seem to have an impact on medication adherence, which is a major determinant of BP control<sup>2</sup>. Nevertheless, there is no scientific consensus about the potential effect of beliefs and perceptions on BP control, neither on its racial disparities.

**Figure 1: Conceptual model**



### Aims:

To explore the impact of **medication beliefs** and **illness perceptions** on **BP control** and **medication adherence**.

## Methods

### Participants

Cross-sectional study with Portuguese natives and African migrants from Lisbon's Region Primary Health Care Centers. Hypertensive medicated subjects aged between 40-80 years were randomly selected.

### Data collection

Face-to-face interviews were conducted between September 2010 and March 2011, regarding sociodemographic and clinical variables, and the Beliefs about Medicines (BMQ) and the Revised Illness Perception (IPQ-R) questionnaires were applied.

### Statistical analysis

Principal Component Analysis (PCA) was used to explore associations between BMQ dimensions, IPQ-R dimensions, BP values, Adherence and sociodemographic variables.

### Variables

#### Mean Arterial Pressure (MAP):

- Average values of 3 BP measurements taken during the interview, and the following formula:  

$$MAP = DBP + 1/3 (SBP - DBP)$$
- **Uncontrolled BP:**  $\geq 140/90$ mmHg

#### Adherence:

- Sum of "yes" responses at seven questions of the Portuguese version of the Morisky self-report scale.
- Adherent was defined by score=0.
- Non-adherent was defined by scores between 1 and 7.

#### BMQ dimensions:

- **General BMQ:** general harm, general overuse.
- **Specific BMQ:** specific necessity, specific concerns.
- Likert scales between 1 (completely disagree) and 5 (completely agree).
- Scores were obtained from the sum of all items of the scales (varying between 5 and 25).

#### IPQ-R dimensions:

- Time, cyclical timeline, consequences, personal control, treatment control, emotional representations.
- Likert scales between 1 (completely disagree) and 5 (completely agree).
- Scores were obtained from the average of all items of the scales (varying between 1 and 5).

## Results

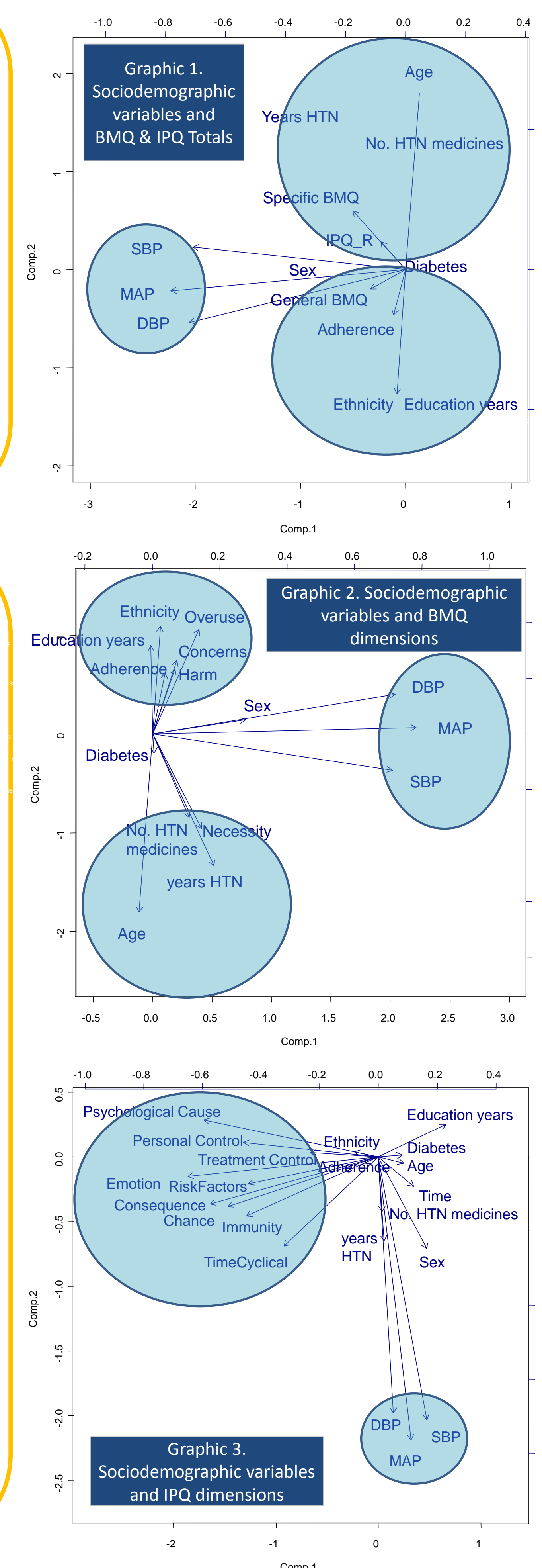
### Sociodemographic characteristics

- Of the 121 participants, 70.2% were natives and 53.7% were women, with a mean age of  $60.4 \pm 10$  years.
- Medication adherence was verified in 52.1% and BP control in 72.7%.
- MAP was  $102.7 \pm 13.8$  mmHg, mean Systolic Blood Pressure (SBP),  $138.2 \pm 20.1$  mmHg, and mean Diastolic Blood Pressure (DBP),  $84.9 \pm 12.7$  mmHg.

### Bivariate Analysis

- **Africans** were younger ( $p < 0.01$ ) and had similar BP values compared to Portuguese natives.
- **Subjects with  $\leq 64$  years old** had fewer perceptions about chronicity of HT, more perceptions about personal control of HT and less necessity to take anti-hypertensive medication (all  $p < 0.05$ ).
- **Women** presented less beliefs about medication overuse than men ( $p < 0.05$ ).
- **Patients with more than one prescribed medicine** had more beliefs on concerns about anti-hypertensives (aHT) and more perceptions about consequences of HT (all  $p < 0.05$ ).
- **Diabetic subjects** had more beliefs on concerns about aHT, had more beliefs on harm of general medications, relatively to non-diabetic participants (both  $p < 0.05$ ).

### Graphics: Results of PCA



### Results of PCA

- **General BMQ** was associated with adherence, ethnicity and education years.
- **Specific BMQ** was associated with IPQ-R and age.
  - **Specific necessity** was associated with number of aHT and age.
- **Adherence** was associated with specific concerns, general harm, general overuse, education years and ethnicity.
- **MAP** and BP values weren't associated with BMQ, IPQ-R or other variables.

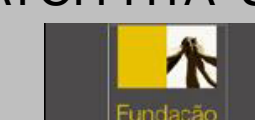
## Discussion and Conclusions

This study confirms the impact of attitudes towards medicines in general on **medication adherence**, but find no effect on BP values. **Ethnicity and education** seem to be related to medication adherence. Plus, **age, sex, ethnicity, number of aHT, and the presence of diabetes** were related factors to beliefs and perceptions. These results must be confirmed with larger samples. There is a need to understand how wrong attitudes can be demystified in order to develop interventions to improve medication adherence and BP control, specially in specific populations.

### Acknowledgements

Health Centers participants in the DIMATCH-HTA Study (PTDC/SAU-ESA/103511/2008).

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Scientific support:



### References:

1. Kressin NR, et al. Hypertensive patients' race, health beliefs, process of care and medication adherence. Journal of General Internal Medicine (2007) 22 (6), 768-774.
2. Kressin NR, et al. Understanding contributors to racial disparities in blood pressure control. Circulation Cardiovascular Quality and Outcomes (2010) 3, 173-180.