Blood pressure self-monitoring practices in medicated hypertensive patients

comparison between African migrants and natives followed at primary care level in Lisbon, Portugal

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INTRODUCTION

Hypertension is present in 40% of world population (1) and it is well described that African people have higher risk of being hypertensive and of dying with stroke than Caucasians (2).

Cardiovascular events are the leading cause of death in Portugal, which has the highest rate of stroke in the European Union. A recent study found that 42.1% of Portuguese adult people are hypertensive (3). Moreover, Portugal has a large African community because of its close relationship with Portuguese speaking African countries.

Self-monitoring is strongly recommended for the management of cardiovascular disease (4) and for improvement of patient adherence to treatment (5). Particularly, blood pressure (BP) self-monitoring has demonstrated small, but significant, improvements of hypertension control in several studies (6). However, self-monitoring practices may be associated with cultural beliefs and individual perception of the ability to control its own health, which may be different among native and immigrants background culture.

Knowledge about self-monitoring practices and its differences between African migrants and Caucasians is scarce, but may contribute to assure patient involvement and empowerment on hypertension self-management.

STUDY OBJECTIVES

1) Characterize practices and frequency of BP measurement in native and African migrant primary care hypertensive patients in Lisbon, Portugal;

2) Evaluate the association between BP measurement and BP control and patient adherence to treatment, among native and African migrant hypertensive patients.

DESIGN AND METHODS

This study is part of the baseline phase of the DIMATCH-HTA project, which aims to evaluate BP control and its determinants among medicated hypertensive patients aged 40-80 years, and from two cohorts of African migrant and native subjects randomly selected from primary care centres of the Lisbon Health Region (Figure 1).

Face-to-face interviews were conducted at baseline, including data collection of demographic characteristics, practices of BP monitoring, BP values and self-reported adherence to antihypertensive drugs. Bivariate statistics (α=0.05, SPSSv19) were used to compare natives and African migrants regarding the above mentioned variables, and to evaluate the association of BP measurement with BP control and patient adherence.

RESULTS

A total of 801 subjects were included at baseline, with interviews being conducted from September 2010 to March 2011. Socio-demographic and disease related variables are presented in table 1, as well as bivariate correlations between ethnicity and BP control and patient adherence.

In the last 12 months previous to baseline interview, 43.0% of natives and 27.0% of African migrants measured BP ≥ once weakly, while 31.8 *vs.* 39.6% and 15.4 *vs.* 18.2% had measured BP ≥ once monthly or once per 3 months, respectively. Also, 8.0 *vs*. 13.8% did not measured BP on a regular basis and 1.8 *vs*. 1.5% reported never had measured BP during the last year. The most usual reasons for BP measurement were “not feeling well” (51.1%) and “routine” (44.8%), among others.

Regarding the place for BP measure, 44.6% of natives and 73.4% of African migrants reported having the last BP measure at other place than home, from which 22.4 (natives) *vs.* 37.7% (African migrants) measured BP at the pharmacy, 15.4 *vs.* 25.1% at the health care centre, 1.8 *vs.* 3.5% at the hospital, 2.5 *vs*. 3.5% at other health services and 2.5 *vs.* 3.5% at other places.

No differences were found between natives and African migrants regarding place of BP measure and BP control or adherence (Figures 2 and 3). Similar results were found for frequency BP measure *vs*. BP control (Figure 4). Figure 5 shows that non-adherence was significantly higher among African migrants with higher frequency of BP measurement (p=0.012).

CONCLUSIONS

BP measurement at home appears to be more common in Portuguese natives and, compared to African migrants, natives reported measuring BP more often. Although no association with BP control was found, measurement of BP at home and frequency of BP measurements is associated to better adherence to medication. We hypothesize that promoting BP self-monitoring, particularly among migrants non-adherent hypertensive patients, may improve BP control.

ACKNOWLEDGMENTS

To the General Practitioners and participants of the DIMATCH-HTA study, and to the interviewers team. The DIMATCH-HTA study is supported by the Portuguese Science and Technology Foundation (REF) and the Portuguese AstraZeneca Foundation, with the scientific support from the Portuguese Association of General Practitioners.

TABLES AND FIGURES

Figure 1. DIMATCH-HTA study design – baseline evaluation

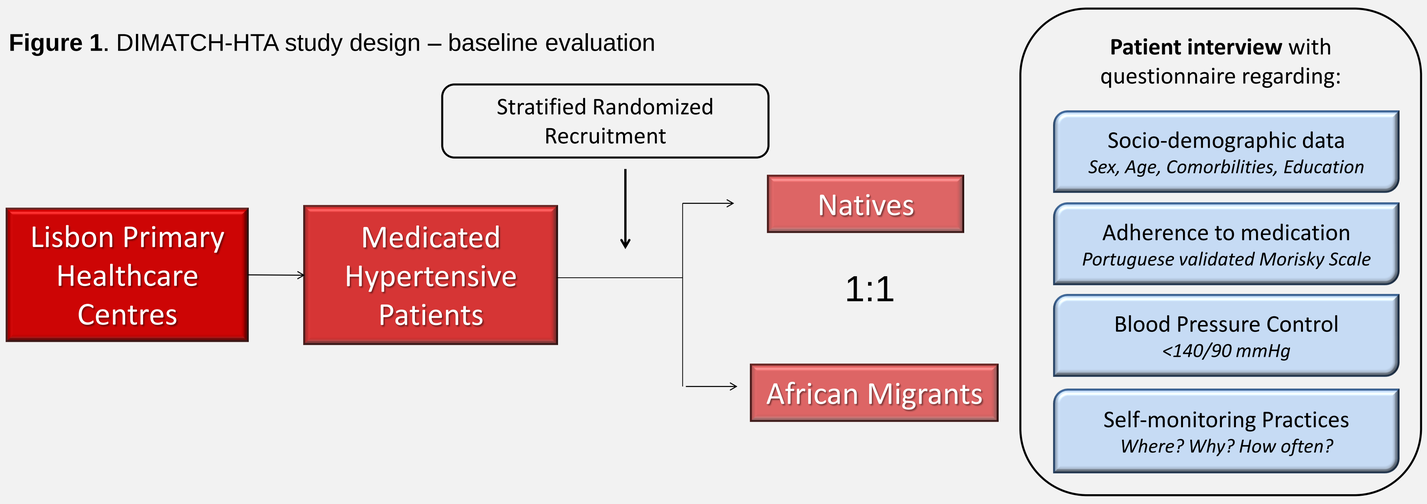


Table 1. Characterization of participants by socio-demographic characteristics, disease-related variables, BP control and patient adherence to medication, between Portuguese natives and African migrants.

	Variable	Natives (n=453)	African migrants (n=348)	Significant differences (*Compared with African migrants…*)	*p*
Sample Characterization	Age, years (mean ± SD)	64.2±9.1	56.8±10.2	***Natives are 7.4 yrs older***	<0.001*
	Sex, % men	49.0	33.6	***More 15.4% native men***	<0.001
	Education, yrs (mean ± SD)	6.7±4.1	6.4±4.5	-	0.243*
	IMC, > 30 %	47.5	50.3	-	0.460
	Hypertension duration, yrs (mean ± SD)	13.8±10.8	12.3±10.9	***Natives have more 1.5 yrs of HTA***	0.017*
	Diabetes, %	24.4	26.0	-	0.610
Frequency of BP measurement	At least once a week, %	43.0	27.0	***Natives measure BP more frequently, particularly at least once a week***	<0.001
	Regularly, %	47.2	57.8		
	Not regularly, %	9.8	15.2		
Last BP measurement	At home, %	55.4	26.6	***Natives make BP measures at home twice more***	<0.001
	Other place than home, %	44.6	73.4		
BP control	Systolic BP, mmHg (mean ± SD)	141.3±20.5	141.6±23.4	-	0.761*
	Diastolic BP, mmHg (mean ± SD)	83.8±11.9	88.4±13.1	***Natives have a mean diastolic BP 4.6 mmHg lower***	<0.001*
	BP control, %	46.7	45.2	--	0.686
Adherence to antihypertensive medication	Intentional non-adherence, %	4.9	11.7	***Natives are 1.5x more adherent to antihypertensive medication***	<0.001
	Non-intentional non-adherence, %	42.4	54.2		
	Adherence, %	52.8	34.1		

***p*, p-value from the chi-square test, except * from Mann-Whitney test**

Figure 2. BP control according to last BP measurement.

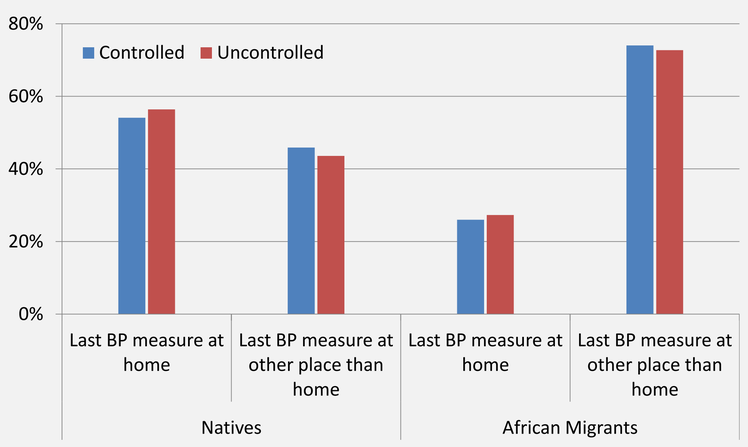


Figure 3. Patient adherence according to last BP measurement

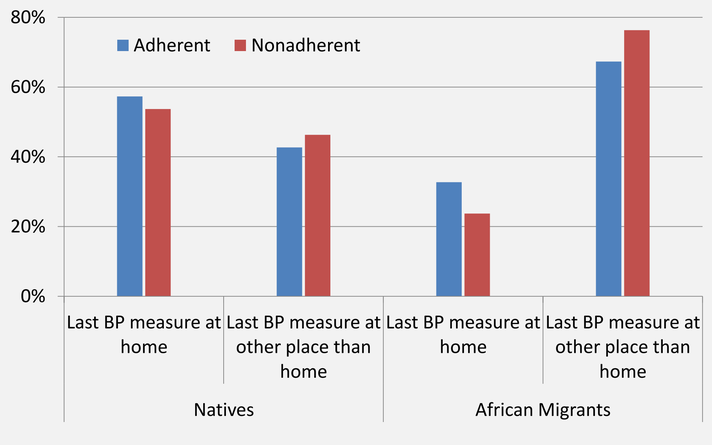


Figure 4. BP control according to frequency of BP self-measurement

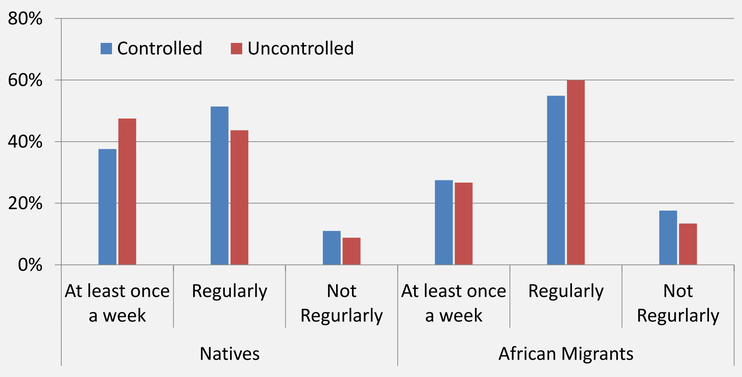
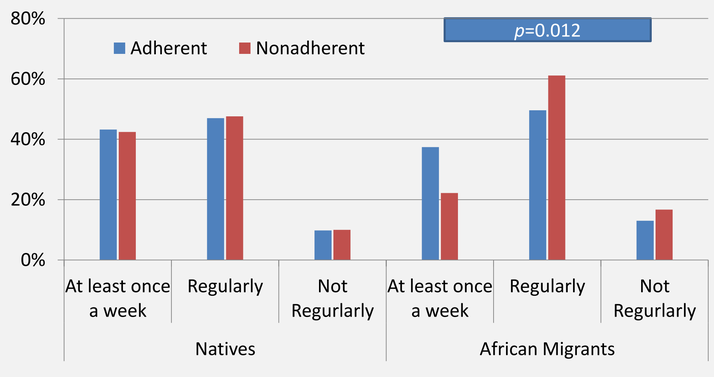


Figure 5. Patient adherence according to frequency of BP self-measurement



REFERENCES

1. World Health Organization, 2010. Global status report on non communicable diseases, Geneve: WHO.
2. Agyemang C, Bhopal R. Is the blood pressure of people from African origin adults in the UK higher or lower than that in European origin white people? A review of cross-sectional data. J Hum Hypertens. 2003;17(8):523-34.
3. Macedo ME, *et al*. Prevalence, awareness, treatment and control of hypertension in Portugal: the PAP study. J Hypertens. 2005;23(9):1661-6.
4. Ward, A., Heneghan, C. & al, e., 2010. What are the basic self-monitoring components for cardiovascular risk management? BMC Med Res Methodol 2010;10:105.
5. Kim J, *et al*. Compliance with home blood pressure monitoring among middle-aged Korean Americans with hypertension. J Clin Hypertens 2010;12(4):253-60.
6. Glynn LG, *et al*. Interventions used to improve control of blood pressure in hypertensive patients. Cochrane Database Syst Rev 2010; (3):CD005182.