


May Measurement Month 2019: an analysis of blood pressure screening results from Colombia

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KEYWORDS

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Hypertension awareness and control is poor in low- and middle-income countries. Thus, implementing strategies to increase hypertension detection is needed. Colombia participated as one of the 92 countries involved in the third campaign of the May Measurement Month in 2019. Blood pressure (BP) was measured in 48 324 volunteers from 13 departments in Colombia. In total, 27.9% individuals were identified with hypertension. Of those with hypertension, 63.7% were aware of their condition, 60.0% were on antihypertensive medication, and 38.4% had controlled BP. These results showed low levels of awareness, treatment, and control of hypertension in this sample of subjects volunteered to participate, suggest the urgent necessity of implementing programmes to improve the diagnosis and management of hypertension in Colombia.

Introduction

Hypertension, defined as systolic and/or diastolic blood pressure (BP) above or equal to 140 and 90 mmHg, respectively, is the principal modifiable risk factor for developing cardiovascular disease (CVD).¹ In 2010, it was estimated that 1.39 billion people worldwide had this condition.² Hypertension control is poor, particularly in low- and

middle-income countries where low levels of awareness and treatment are frequent. Data from the Prospective Urban and Rural Epidemiology study (PURE) in Colombia included subjects over 35 years that reported a prevalence of hypertension of 37.5%, but only 57.1% of participants were aware of their condition. Of those, close to a half received pharmacologic treatment (52.8%) and only 18.8% had well-controlled BP.³ Thus, campaigns to increase diagnosis and treatment of hypertension are crucial to reducing the CVD burden. The May Measurement Month (MMM) initiative was created in 2017 by the International Society of

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Hypertension (ISH), intending to increase hypertension awareness. Colombia has been part of the MMM initiative in the last three consecutive years. According to 2018 results, the prevalence of hypertension in the participants evaluated was 26.7%; of those, 69.9% were aware of their condition, 65.0% were in pharmacological treatment. However, less than half among treated (43.1%) had controlled BP.⁴ We present the MMM 2019 results in Colombia, comparing them with previous reports.

Methods

MMM 2019 campaign in Colombia was co-ordinated by the Universidad de Santander (UDES) and Fundación Oftalmológica de Santander (FOSCAL). The ethical committee authorized the collection, management, and analysis of the obtained results. Twenty sites from 13 departments from the country were included in the analysis. Almost 400 volunteers, including healthcare personal, were involved in MMM19. The principal investigator from each department trained all volunteers to obtain correct BP measurements, according to the MMM protocol.⁵ BP was measured with OMRON monitors (Model: HEM7121) that has been properly validated. Appropriate cuff sizes were used based on each individual's phenotype. Hypertension was defined as systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg or on self-reported treatment for hypertension. The mean of the second and third BP measurements was used for the analyses or imputed where missing based on global data.⁵ Height and weight measurements were collected when possible, but they were self-reported when measurement could not be performed. The data were cleaned locally by FOSCAL and analysed centrally by the MMM project team.

Results

A total of 48 324 adults, 54.9% women, with a mean age of 42.8 years (SD 19.1), were included in the analysis. Of these, the majority belonged to a mixed ethnic group (57.6%). Most of the participants, 32 661 (67.6%) had a BP measurement in the previous year, while 5.4% never had a BP measurement (Table 1). After multiple imputation, 13 472 (27.9%) individuals were identified with hypertension. Of those, 8576 (63.7%) were aware of their condition, and 8084 (60.0%) were on antihypertensive medication. In participants not on antihypertensive medication, 5388 (13.4%) were identified with hypertension. Of those on antihypertensive medication, 5174 (64.0%) had controlled BP (systolic BP < 140 mmHg and diastolic BP < 90 mmHg), and the proportion of controlled BP in all hypertensive participants was 38.4%. After adjusting for confounders, a history of diabetes, previous myocardial infarction, and previous stroke event were significantly associated with higher systolic BP.

Discussion

The MMM19 campaign in Colombia showed a prevalence of hypertension of 27.9%, with about two-thirds aware of their condition and receiving antihypertensive medication,

Table 1 Participants characteristics

Participant characteristics	Total	Percentage
Gender		
Female	26 506	54.9
Male	21 784	45.1
Mean age, mean (SD)	42.8	(19.1)
Hypertensives	13 472	27.9
Hypertensives aware	8576	63.7
Treated hypertensives	8084	60
Treated controlled hypertensives (among treated)	5174	64
Treated controlled hypertensives (among total)	5174	38.4
Never had their BP measured	2633	5.4
Participants on aspirin	3031	6.3
Participants on a statin	3151	6.5

but only 38.4% of the total hypertensive population was controlled. When comparing the results with those obtained in the MMM18 in Colombia, the prevalence of hypertension, the level of awareness, the proportion of participants on antihypertensive medication, and the control levels were similar⁴ and are in concordance with the results reported in the Latin American region.⁶

MMM19 showed a slight decrease in the proportion of participants on antihypertensive medication, which could be a chance phenomenon since this is not a randomly selected general population sample or could be related to low medication availability as has been recently reported by the PURE study.⁷ This study included 163 466 participants from low-, middle-, and high-income countries and showed that low availability of antihypertensive drugs is associated not only with lower levels of BP control but also with a higher risk of major cardiovascular events and mortality.⁷ The communities with the lowest availability of drugs had the lowest education levels and the highest poverty rates.⁸ Therefore, these data reveal that in low- and middle-income countries like Colombia, low levels of hypertension control can be related to doctors' inertia and patients' poor adherence but also to high levels of inequality. Inequity has been demonstrated to be also associated with a higher risk of hypertension.³ Hence, interventions that could reduce inequity gaps are likely to improve hypertension control. The HEARTS initiative in the Americas implements a population-based standardized hypertension treatment protocol with the use of two antihypertensive medications, preferably with a fixed-dose combination.⁹ Also, the HOPE-4 study conducted in Colombia and Malaysia, included a community-based intervention on the education of the population and on improving the availability of antihypertensive medication. This achieved a doubling of BP control compared to standard management (69.0% vs. 30.0%; $P < 0.0001$).¹⁰ These two studies included excellent examples of feasible interventions that can be carried out in our countries.^{9,10} Some limitations of the MMM study include the screenee recruitment method that was carried out by convenience, which is likely to generate

a selection bias and a non-representative national sample. However, when compiling MMM Colombia data from the last 3 years, including more than 100 000 screenees the results are very consistent.¹¹

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