

# May Measurement Month 2018: an analysis of blood pressure screening results from Mauritius

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## KEYWORDS

Hypertension;  
Blood pressure measurement

Hypertension is a growing burden worldwide, leading to over 10 million deaths each year. May Measurement Month (MMM) is a global initiative of the International Society of Hypertension (ISH) aimed at raising awareness of high blood pressure (HBP) and to act as a temporary solution to the lack of screening programmes worldwide. We here provide the results of the 2018 MMM (MMM18) edition in Mauritius. This cross-sectional survey of participants aged  $\geq 18$  years was carried out in May 2018. Hypertension was defined as systolic blood pressure of at least 140 mmHg or diastolic blood pressure of at least 90 mmHg or both. Blood pressure (BP) measurement and statistical analysis followed the standard MMM protocol. Screening was conducted by Non-Communicable Diseases and Health Promotion Unit, which is under the aegis of the Ministry of Health and Quality of Life, mainly in workplaces and community centres, in both rural and urban areas across Mauritius. Of 5471 individuals screened, after multiple imputation, 786 (14.4%) had untreated hypertension. MMM18 was the largest BP screening campaign undertaken in Mauritius. These results suggest that MMM18 is very useful to identify significant numbers of patients with raised BP.

## Introduction

Hypertension contributes significantly to the burden of disease globally and affects 1.13 billion people worldwide and is a major contributor to the growing global pandemic of cardiovascular disease (CVD) including stroke. Worldwide, in 2015, one in five women and one in four men had hypertension.<sup>1</sup> Complications from high blood pressure (HBP) are responsible for 10.4 million deaths worldwide every year.<sup>2</sup>

Hypertension is the principal cause of Mauritians attending community hospitals, area health centres and mediclinics in Mauritius.<sup>3</sup> In 2015, the prevalence of hypertension among Mauritian adults aged 25-74 years was 28.4%

which marked a significant decrease in the prevalence of hypertension compared to 38.0% in 2009.<sup>4</sup> As it is well-known that the risk of CVD events increases with rises in blood pressure (BP) and this increased risk is graded and continuous, the aim is to halt the rise in hypertension-related complications as recommended by the Mauritius Non-Communicable Diseases (NCD) survey 2015. May Measurement Month (MMM) is a project initiated by the International Society of Hypertension (ISH), aimed at raising awareness of HBP and to act as a temporary solution to the lack of screening programmes worldwide. The MMM campaign has opened the avenues for community-based screening and prevention programmes. For instance, the MMM campaign carried out in Mauritius in 2017, resulted in 332 people diagnosed with hypertension out of 2354 people screened.<sup>5</sup>

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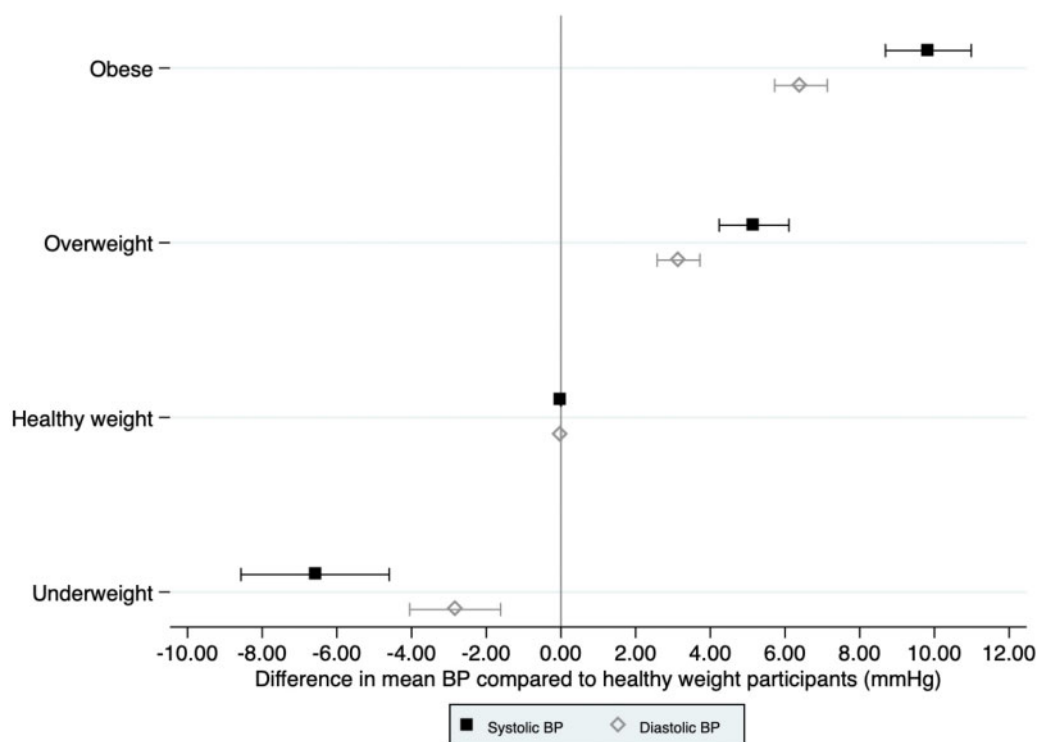


Figure 1 Difference in mean blood pressure in each body mass index group compared with healthy weight (mmHg).

## Methods

MMM is a cross-sectional survey which was initiated by the ISH and endorsed by the World Hypertension League. MMM18 in Mauritius was co-ordinated by Non-Communicable Diseases and Health Promotion Unit, which is under the aegis of the Ministry of Health and Quality of Life. This Unit was responsible for obtaining ethical clearance from the National Ethical Committee, field screening, data collection as well as data management and transfer to the central MMM team.

Screening was performed mainly in workplaces and community centres in urban and rural areas across Mauritius. Five teams of the Non-Communicable Diseases and Health Promotion Unit screened adults aged 18 years or above throughout the island of Mauritius. Height and weight were measured and three BP measurements were made using Omron automated devices. Additional data were also collected using a questionnaire which was later transferred to Excel spreadsheets and sent to the MMM co-ordination centre for analysis.

Hypertension was defined as systolic BP of at least 140 mmHg or diastolic BP of at least 90 mmHg (or both) based on the mean of the 2nd and 3rd BP readings. Participants receiving anti-hypertensive treatment were excluded from the sample which was a deviation from the original MMM protocol. Screening for HBP was performed on those who were not following treatment for hypertension. In the 10 cases where the mean of the 2nd and 3rd BP reading was missing, multiple imputation was used to

estimate the missing reading. Participants with BP in the hypertensive range were provided with printed evidence-based dietary and lifestyle advice to lower BP and referred for further follow-up in primary health care centres.

## Results

Of the 5471 participants screened, 3544 (64.8%) were female of whom 14 (0.4%) reported to be pregnant. The mean [standard deviation (SD)] age was 46.8 (14.8) years and 77.3% were of South Asian and 21.4% of Black ethnicities. With regards to self-reported conditions and risk factors, 19 (0.3%) had a history of myocardial infarction, 356 (6.5%) had diabetes, and 701 (12.8%) were current smokers, while 177 (3.2%) consumed alcohol once or more per week.

The mean body mass index in 5471 participants was 25.9 (SD 4.9) kg/m<sup>2</sup>. Blood pressure was measured on the left arm among 5239 (95.7%) subjects. Measurements were carried out on different days of the week.

Among screened participants with three valid consecutive BP measurements, the first readings (both systolic BP and diastolic BP) were the highest and the 3rd reading the lowest, while the average of the 2nd and 3rd readings untreated was not appreciably different from the 2nd reading. The number of participants with hypertension was 786 (14.4%). A statistically significant higher level of systolic and diastolic BPs was observed among overweight and obese participants compared to participants with a healthy weight after adjusting for age and sex (Figure 1).

## Discussion

MMM18 is the largest hypertension screening campaign done in collaboration with the Mauritian government following a standardized protocol. Of the 5471 participants screened in Mauritius, 786 (14.4%) had untreated hypertension (whilst those on treatment for hypertension were not included in the sample screened).

These results conflict with the Mauritius NCD survey 2015 which reported a prevalence of hypertension of 28.4% among adults in Mauritius. However, in Mauritius, the screening for NCDs including HBP was carried out on those who were not on treatment for NCD including hypertension with the view to screen a greater number of people in community and all worksites. Hence, those following treatment are div to the nearest health centres for treatment and follow-up.

The MMM impact was effective, because it took hypertension to the front line of our health agenda, reminding both health professionals and the population of the need for regular BP measurement. The simplicity of the MMM study and its little cost of resources contributed

greatly to the considerable success of the campaign in our country.<sup>6</sup>

**Conflict of interest:** none declared.

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