

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

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KEYWORDS

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The aim of this study is to estimate the frequency of undetected hypertension across the six geopolitical zones of Nigeria. We conducted an opportunistic screening of adults aged at least 18 years in the month of May 2019. Participants were recruited by trained volunteers using the May Measurement Month protocol. Blood pressure (BP) was measured using validated digital and mercury sphygmomanometers. We defined hypertension as BP $\geq 140/90$ mmHg or the use of BP-lowering medication. A total of 3646 participants (52.8% females) with a mean age of 44.5 ± 15.7 years were screened. Hypertension was present in 39.2% of the participants but only 55.4% of these were on antihypertensive medications. Only 46.8% hypertensives who were on medications had their BP controlled ($<140/90$ mmHg). Previous history of hypertension in pregnancy, alcohol intake and smoking were associated with increased mean systolic and diastolic BPs. The frequency of Nigerians with hypertension is high while only about half of those on antihypertensive medications are controlled. A multi-pronged approach to reduce the burden of hypertension is needed.

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Table 1 Total participants and proportions with hypertension, awareness, on medication, and with controlled blood pressure

Total participants	Number (%) with hypertension	Number (%) of hypertensives aware	Number (%) of hypertensives on medication	Number (%) of those on medication with controlled BP	Number (%) of all hypertensives with controlled BP
3646	1428 (39.2)	899 (62.9)	791 (55.4)	370 (46.8)	370 (25.9)

BP, blood pressure.

Introduction

Hypertension remains a significant cause of global morbidity and mortality, with the burden increasing in developing countries. Sub-Saharan Africa has a pooled hypertension prevalence of 30.0%, with only 18.0% of these on treatment, out of which only 7.0% have their blood pressure (BP) controlled.¹ In the opportunistic May Measurement Month (MMM) national survey in 2018, the frequency of hypertension was 36.4%,² while the overall age-standardized prevalence of hypertension from another national survey was 38.1%.³ Hypertension remains the dominant risk factor for major cardiovascular diseases like stroke, heart failure, ischaemic heart disease, and chronic kidney disease and is responsible for up to 95.0% of stroke cases.⁴

May Measurement Month, an annual programme of the International Society of Hypertension, provides an opportunity to conduct surveys to elucidate the burden of hypertension. With this screening, Nigeria is able to join other participating nations of the world to determine the burden of hypertension so that appropriate recommendations on mitigating the long-term consequences can be made.

Methods

The 2019 MMM was co-ordinated by the Secretary General of the Nigerian Hypertension Society. Participants were recruited from participating sites located in the six geopolitical zones of the country including the Federal Capital Territory in Abuja. As in previous editions, data were collected by trained volunteers who included medical doctors, nurses, physiotherapists, research assistants, and other healthcare workers. All those involved in data collection had prior training on how to use the MMM App to collect data on site. The MMM19 campaign was funded by the Nigerian Hypertension Society with support from the International Society of Hypertension and the Nigerian Office of Servier Pharmaceutical Industries. Participants were recruited from public places, specialist and general outpatient clinics following a public health campaign on MMM19 in markets, hospitals, and places of worship. In addition to the sphygmomanometers supplied to the International Society of Hypertension by OMRON Healthcare, data collectors supplemented with the use of their personal digital or mercury sphygmomanometers. Blood pressure was measured three times and the mean of readings two and three was computed and used in the analyses. Anthropometric measurements [weight (kg) and height (cm)] were measured with appropriate instruments.

The MMM App was used for direct real-time entry of participant's data. Hypertension was defined as a systolic BP ≥ 140 mmHg or diastolic BP ≥ 90 mmHg or self-reported history of being on treatment for hypertension.⁵ The screening was approved by the National Health Research Ethical Committee (NHREC) while each participant's consent to participate was obtained after necessary explanation of the programme. Data were analysed centrally by the MMM project team and multiple imputation performed to impute the mean of the 2nd and 3rd readings where this was missing.

Results

A total of 3646 participants (52.8% females) with a mean age of 44.5 ± 15.7 years were screened. They were predominantly black (97.4%) and only 141 (3.9%) participated in either MMM17 or MMM18 campaigns. Of all participants, 1428 (39.2%) had hypertension but only 791 (55.4%) of these were on antihypertensive medications while only 46.8% of these were controlled (BP $< 140/90$ mmHg) (*Table 1*). Four hundred and sixty (12.6%) of the participants never had a BP check previously. Of the participants not on antihypertensive medication, 637 (22.3%) were hypertensive.

As shown in *Figure 1*, participants who had a previous history of hypertension in pregnancy had significantly higher mean systolic and diastolic BP compared with women without such a history. Smoking and regular alcohol intake (once or more per week) were associated with significantly higher systolic BPs than in non-smokers and non-drinkers, respectively (*Figure 1*).

Discussion

This opportunistic screening campaign (MMM) shows that 39.2% of participants had hypertension but only just over half (55.4%) of them were on treatment with antihypertensive medications while about half (46.8%) of those on treatment had their BP controlled. Only 25.9% of all participants with hypertension were controlled. These figures are similar to those reported from two previous screenings in the country² and a recent nationwide survey.³ May Measurement Month has remained an effective programme to detect undiagnosed hypertension in Nigeria and other parts of the world. It is also important in prioritizing attention to those who are hypertensive and are on treatment but are not controlled so that the factors militating against achieving control can be elucidated and addressed.

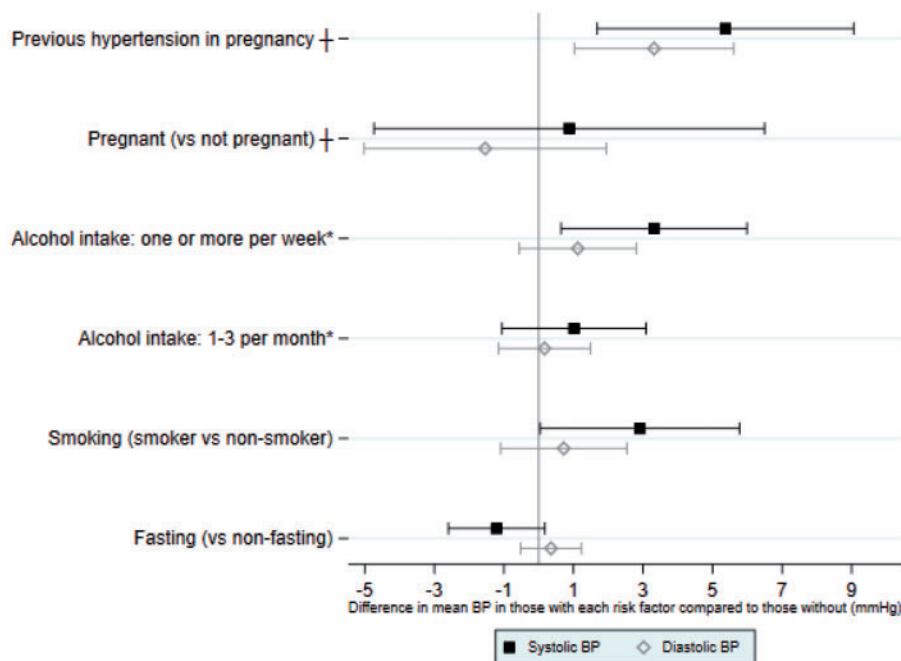


Figure 1 Difference in mean blood pressure in those with select risk factors compared with those without.

Associations between an increase in BP with regular alcohol consumption, and smoking are well established and it is not surprising that we had similar associations in our participants. Efforts at continuing health education to discourage smoking and excess alcohol consumption need to be up-scaled while all efforts should be made to detect those with hypertension in pregnancy and target them for treatment. The marginal decrease in the mean systolic BP of those engaged in fasting compared with those who were not was not significant. However, our finding may still support the positive effect of long-term fasting on reducing BP.⁶ This will, however, require further studies in our population.

While the opportunistic nature of the MMM campaign is a source of potential bias, the data compare well with previous and recent data on hypertension in Nigeria. Nonetheless, more studies are needed to unravel the high rate of hypertension while implementation research is needed to take care of factors that contribute to poor control.

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