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

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May Measurement Month (MMM) is a global initiative that aims at raising awareness and screening people for high blood pressure (BP). Malawi has participated in MMM since 2017. A 2017 STEPwise Survey conducted in Malawi among 4187 participants found that 65.2% had never had their BP measured before, 26.8% had their BPs measured but not diagnosed, 3.9% were diagnosed but not within the last 12 months, and 4.1% were diagnosed within the last 12 months. An opportunistic cross-sectional survey of volunteers aged 18 and above was carried out in May and June 2019. All BP measurements, definition of hypertension and statistical analysis followed the standard MMM protocol. The screening took place in Nkhatabay, Lilongwe, and Blantyre. A total number of 9723 participants were screened with a mean age of 42.0 (SD 16.6) years. Of these 8444 (86.8%) had never had their BP measured within the last 12 months, 2559 (26.3%) had raised BP, 2169 (23.2%) of those with raised BP were not on treatment whereas 390 (4.0%) were on treatment. The results showed that many of the participants had not had their BP checked in the past year. There is a significant need to expand BP screening opportunities within Malawi for early detection of hypertension.

Introduction

Non-communicable diseases are estimated to account for 32% of all deaths in Malawi.¹ Cardiovascular conditions like high blood pressure (BP), stroke, and related premature deaths due to these conditions are very common and reported widely in the media.

In a 2017 STEPwise Survey conducted in Malawi by the Ministry of Health and World Health Organisation among 4187 participants, it was found that 65.2% had never had their BP measured before, 26.8% had their BPs measured but not diagnosed, 3.9% were diagnosed but not within the last 12 months, and 4.1% were diagnosed within the last 12 months.¹

Malawi began its participation in May Measurement Month (MMM) from its inception in 2017 as a way of ensuring that the general public were aware and screened for high BP. The MMM 2017 campaign was conducted in the cities of

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Blantyre and Lilongwe, where 4009 participants were screened, 849 (22.3%) had hypertension, 687 (82.1%) of those with hypertension were not receiving treatment whereas 152 (17.9%) were receiving treatment.² For those receiving treatment, 78 (51.4%) had uncontrolled BP whereas 74 (48.6%) had their BP under control (<140/90 mmHg).

In MMM18, a total of 10 791 participants were enrolled, 5724 (53%) were female whereas 5057 (46.9%) were male.³ Of these, 8838 (81.9%) never had their BP checked in the past 12 months whereas 5166 (47.9%) never have had their BP checked before and 2404 (22.3%) had hypertension. Of the individuals not receiving antihypertensive treatment, 2101 (20.0%) were found to have hypertension. Only 303 (12.6%) of those with hypertension were receiving antihypertensive treatment and of these 101 (33.3%) had uncontrolled BP. This publication describes the results of the MMM campaign carried out in Malawi in 2019.

Methods

The study was co-ordinated by Moyowathu HealthCare Services, Prime Health Consulting and Services, and Women in Infectious and Non-infectious Diseases Research in Malawi (WIDREM) with support from the Ministry of Health.

There was no need for ethical clearance as the initiative compliments the Ministry of Health's efforts to raise awareness and encourage people to be screened for raised BP.

There were ~37 MMM screening sites that were located in three districts namely Blantyre, Lilongwe, and Nkhatabay mostly in locations including hospitals/clinics, workplaces, market places, and churches. Approximately 28 volunteers and investigators comprising both health workers and non-health workers supported the MMM BP screening activities and were briefed on how to complete the developed questionnaire and use the BP measuring devices.

Sources of funding were from the International Society of Hypertension (ISH), Moyowathu HealthCare Services, Prime Health Consulting and Services, and WIDREM.

The Times Media Group and Malawi News Agency supported the campaign by sharing information with the general public in the print media. We also used word of mouth promotion via public gatherings announcements in churches, by local leaders and at markets.

The awareness and screening took place during the month of May and part of June; over ~45 days and used Omron BP machines donated to ISH by OMRON Healthcare.

Participants had three BP measurements taken whilst in a seated position.

The definition of hypertension was as defined as Systolic Blood Pressure (SBP) ≥ 140 or Diastolic Blood Pressure (DBP) ≥ 90 mmHg based on the mean of the 2nd and 3rd BP readings or on treatment for hypertension.^{4,5} Among those on treatment for BP, control was defined as a systolic BP <140 mmHg and diastolic BP <90 mmHg. Multiple imputations were used to impute BP readings where these were missing, based on global data.⁵

New variables were introduced from 2017/18; these included the use of aspirin, statins, and also number of hypertension medications taken.

Data were collected in hard copy with 10 entries per page then entered into an excel file. Data cleaning was completed locally by Henry Ndhlovu.

Results

A total number of 9723 participants (*Table 1*), all of black ethnicity were screened with a mean age of 42.0 (SD 16.6) years. Of these participants, 4145 (42.6%) were female and 5560 (57.2%) were male. Eighteen (0.2%) were unknown.

The number and proportion of participants who had never had their BP measured within last 12 months were 8444 (86.8%). After imputation, the number with hypertension was 2559 (26.3%) of 9723 participants (*Table 1*) and the number with hypertension of those not on antihypertensive medication was 2169 (23.2%) of 9333. Only 390 (4.0%) of all participants were taking antihypertensive medication, representing 15.2% of all hypertensive participants. Of all hypertensives, only 7.9% were controlled. The number and proportion using statins were 8 (0.1%) while those using aspirin was 244 (2.5%).

Discussion

The study found that 2559 (26.3%) of 9723 screened participants had hypertension, 445 (17.4%) were aware that they had the condition, 390 (15.2%) were being treated while only 202 (7.9%) had their BP under control. The proportions of participants with hypertension and controlled BP are similar to previous findings from MMM screening in 2017 and 2018.

There has been increased awareness of hypertension in the areas that took part in the campaign with a request for MMM to continue in future years. However, in 2019, MMM only took place in three districts and in a few areas. For MMM to have a greater impact, there is a need to provide BP screening in an increased number of districts in the country. This would call for funding for the initiative going forward.

MMM19 was deployed in selected areas and participants were not randomly selected. Screening took place in specific locations and on specific days; even so not all were screened.

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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 hypertensive aware	Number (%) of hypertensive on medication	Number (%) of those on medication with controlled BP	Number (%) of all hypertensive with controlled BP
9723	2559 (26.3)	445 (17.4)	390 (15.2)	203 (51.9)	203 (7.9)

BP, blood pressure.

communities of Bvumbwe, and business persons from Lunzu market in Blantyre.

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Conflict of interest: none declared.

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