European Heart Journal Supplements (2024) **26** (Supplement 3), iii55–iii57
The Heart of the Matter
https://doi.org/10.1093/eurheartjsupp/suae056

May Measurement Month 2021: an analysis of blood pressure screening results from Malawi

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KEYWORDS
Hypertension;
Blood pressure;
Screening;
Treatment;
Control

May Measurement Month (MMM) is a global initiative aiming at raising awareness and screening people for blood pressure (BP) for free. Malawi started participating in 2017 due to our membership with the International Society of Hypertension, and this was done mainly to raise awareness of high BP, which could be of benefit to the population. An opportunistic cross-sectional survey of participants aged 18 years and above was carried out from May to September 2021 in Blantyre and Lilongwe. All BP measurements, definition of hypertension, and statistical analysis followed the standard MMM protocol. A total of 7074 participants took part with 4348 (61.5%) being male and 2726 (38.5%) female. A total of 1525 (21.6%) participants were found to have hypertension. Of these, 84 (5.5%) were aware that they had the condition, and 81 (5.3%) of those with hypertension were on antihypertensive treatment. Of those on antihypertensive treatment, 61 (76.5%) had controlled BP. The screenings were done in just two districts and a few locations, which therefore are not representative of the whole country. This shows there is a significant need to expand screening opportunities within Malawi for early detection of hypertension to have a greater impact on the country as far as the fight against hypertension is concerned.

Introduction

Cases of high blood pressure (BP) and its related complications including premature deaths are very common in Malawi. A STEPS Survey conducted in 2017 by WHO and the Ministry of Health including 4187 participants showed that 65.2% of the participants had never had their BP checked before, and 26.8% had their BPs in the hypertensive range but were unaware.[1]

Malawi started taking part in May Measurement Month (MMM) in 2017 due to our membership with the International Society of Hypertension (ISH), in order to raise awareness and improve screening for high BP in participating areas, which could be of benefit to the health of the local population.

MMM17 was conducted in the cities of Blantyre and Lilongwe with a total of 4009 participants, and out of

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Table 1 Total participants and proportions with hypertension, awareness, on medication, and with controlled BP [number of individuals (%)]

Total participants	Hypertensives	Hypertensives aware	Hypertensives on medication	Hypertensives on medication with controlled BP	Hypertensives on medication with controlled BP
7074	1525 (21.6%)	84 (5.5%)	81 (5.3%)	62 (76.5%)	62 (4.1%)

these, 22.3% (849 of 4009) had hypertension, 82.1% (687 of 849) of those with hypertension were not receiving treatment while 17.9% (152 of 687) were receiving treatment. For those receiving treatment, 51.4% (78 of 152) had uncontrolled high BP while 48.6% (74 of 152) had their BP controlled[2] (<140/90 mmHg). During MMM18, 10 791 participants took part and 2404 (22.3%) had raised BP and 303 (12.6%) of those with hypertension were receiving antihypertensive treatment, while in 2019, the study enrolled 9723 participants, and 2559 (26.3%) had raised BP of whom 390 (15.2%) were being treated.[3] The COVID-19 pandemic resulted in a number of public restrictions, including not gathering in public spaces and observance of social distancing, which made many people reluctant to attend activities like MMM as they had done in the past. As a result, the campaign was cancelled in 2020, but in 2021, Malawi again participated in MMM. Here, we report on the findings of the MMM21 campaign.

Methods

The study was coordinated by Moyowathu HealthCare Services, Prime Health Consulting and Services, Women in Infectious and Non-infectious Diseases Research in Malawi (WIDREM), and Together Against Hypertension and Diabetes (TAHAD). Volunteer investigators received support from the Ministry of Health. As the MMM initiative compliments the Ministry of Health's efforts to fight hypertension, there was no need for ethical clearance. There were ~24 screening sites, which were in both rural and urban areas in the two districts of Blantyre and Lilongwe. Public spaces, such as churches, community halls, or spaces with grounds provided by local leaders, and workplaces were used for screenings. A total of 18 volunteers comprising of health workers and non-health workers volunteered their time to the campaign. Each volunteer was specially briefed on the measurement of BP, the questionnaire to be used, and how to complete it with a participant. The health workers were paired with non-health workers in the screening sites so that we could provide additional information to participants when needed especially those with raised BP.

In order to recruit screenees and promote the MMM campaign, social media and WhatsApp were used predominately to notify people and share messages and advice regarding exercise and other lifestyle advice to help better manage BP as part of the MMM campaign. MMM screening in Malawi took place between May and September 2021, using validated OMRON BP-measuring devices, which were donated to MMM by OMRON Healthcare. All participants had three BP measurements, recorded while sitting as described in the MMM protocol. Hypertension was defined as a systolic BP ≥140 mmHg and/or diastolic BP ≥90 mmHg based on the mean of the second and third BP readings and/or on treatment for hypertension. In the small number of cases where three BP readings could not be recorded for an individual, multiple imputations were used to estimate the mean of the second and third readings, based on global data using the methods described previously.[4] Most data were collected on hard copies and then entered onto Excel, and cleaning was carried out locally by MMM Malawi country lead, H.N. A small number of screenings were recorded via the MMM App.

Results

A total number of 7074 participants, all of Black ethnicity, were screened with a mean age of 40.5 SD (16.1) years. The majority were male ($n = 4348$, 61.5%), and 2726 (38.5%) were female.

Of all participants, the number (%) with hypertension was 1525 (21.6%; see *Table 1*). Of the 1525 participants with hypertension, only 84 (5.5%) were aware and only 5.3% were on antihypertensive medication. Of those on antihypertensive medication, 62 (76.5%) were controlled, and of all hypertensives, only 4.1% were controlled (<140/90 mmHg). Of participants not taking antihypertensive medication, 20.7% were found to have hypertension. One participant reported taking a statin, and 76 participants reported taking aspirin.

Discussion

Of the 7074 participants screened during MMM21, 1525 participants were found to have hypertension, of whom only 5.5% were aware and only 5.3% were recorded as being on antihypertensive medication. However, MMM screenings were carried out on any member of the public who was interested in understanding more about their BP and having their BP measured (provided that the participant met criteria as outlined in the MMM21 campaign protocol) rather than on participants who were randomly selected. Screening was also carried out in a few districts only and in those districts in relatively few locations. As a result of the sampling strategy, the data are unlikely to be nationally representative and do not represent prevalence. Furthermore, information on BP and a lifestyle information factsheet on how to stay healthy in case of high BP were shared with participants. COVID-19 restrictions, including social distancing and avoiding overcrowding in public places, were in place in the country, which resulted in fewer people turning up at the screening sites as they had done in the past. The provision of BP machines to volunteers may offer opportunities to continue doing the BP checks even after the screening period including for those with hypertension for follow-up. Given the large numbers of participants

with untreated or inadequately treated hypertension in this campaign, we aim to continue participating in MMM campaigns in the future.

Acknowledgements

We would like to thank the following for taking part in MMM21: Mrs Evelyn Chibwe, MoH NCD Technical Assistant, Deborah Madalitso Thom, Lackson Mphande, Shalom Teddy Banda, Mrs Lorna Chewere, Councillor Patrick Makumba for Maria Ward, Pastor Michael Phiri of Evangelical Assemblies of God Church in Area 49, Mrs Phoebe L. Banda, Block Leaders from Areas 49, 51, Habitat, Federation in Lilongwe, namely Mr Fungani Piyo, Kanama, Banda, Jana, Dr Andrew Daudi, Mr Patrick Mhango, Sikochi, and all that participated in these areas, Mr Kenneth Mseka, Mr Babylon Manyika, Mr Ganizani Juneh Thom, and Mr Jones Abraham Gwiriza. Thanks should also go to Dr Samson M'ndolo, Director of Queen Elizabeth Central Hospital (QECH), Ireen Mlangali, member of Mthawira Catholic Church, Mr Macheso, health surveillance assistant (HSA) for Mpira Village, Group Village Headman Mpira, and all community members that participated in Lunzu, Blantyre.

Funding

Funding was secured from donations by MMM, Moyowathu HealthCare Services, and Prime Health Consulting and Services.

Conflict of interest: none declared.

Data availability

The data underlying this article will be shared on reasonable request to the corresponding author.

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