

Blood Pressure Screening at a Non-Government Tertiary Care Hospital in Bangladesh: A Pilot Study

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Abstract:

Objective: The general objective of this pilot study was to unveil the findings of blood pressure screening program at a Non-Government Tertiary Care Hospital in Bangladesh. The specific objectives were to find out socio-demographic profile of the participants, to categorize the blood pressure readings according to the defined variables, to select among the participants who would require intervention and to encourage people in order to adopt healthy diet as well as lifestyle behaviors.

Methods: It was a cross-sectional study conducted at outpatient department of Chattagarm International Medical College Hospital (CIMCH), Shamsherpara, Chattogram from 16.05.2022 to 19.05.2022. The study participants were volunteers of 18 years or older who wished to get the free blood pressure checkup on observation of world hypertension day at CIMCH outpatient premises. **Results:** Altogether 232 patients

participated in the blood pressure screening program, 10.7% were pre-hypertensives and 11.2% had high blood pressure; none of them visited any physician previously for checking blood pressure. Pre-existing hypertensives constituted 16.4% of total participants; nearly half of them had good compliance to medication or life style modification. The maximum (26 out of 51) 'pre-hypertensive' and 'high blood pressure' were in the 30-49 years age group.

Conclusion: Community based blood pressure screening and patient education covering a wider area can be an effective approach to reduce the burden of hypertension as well its consequences on the patient, family, society, nation, and the globe. The results of the current pilot study might provide preliminary data and encourage for future prospective studies.

Keywords: Blood pressure screening, hypertension

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Introduction:

Hypertension is the leading and most important modifiable risk factor for global non-communicable disease burden. ¹ Nonetheless, the awareness about hypertension and its complication is not satisfactory. At the initial stage, hypertension is easy and inexpensive to diagnose; the management ranges from life style modification and/or low cost antihypertensive drugs at

very initial stage, up to high cost management at high dependency or intensive care units at complicated stage. Despite several initiatives, the prevalence of raised BP and adverse impact on cardiovascular morbidity and mortality are increasing globally, irrespective of income. Many risk factors for hypertension are behavioral and modifiable. It is therefore critical that population-based

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initiatives are applied to reduce the global burden of raised BP. The International Society of Hypertension (ISH) has developed worldwide practice guidelines for the management of hypertension in adults, applicable to both high resource and low resource settings.²

As per the data from non-communicable disease risk factor survey of Bangladesh, more than one one-third of the adults did not have their blood pressure measured in lifetime.^{3,4} According to WHO NCD STEPS (World Health Organization STEPwise approach to surveillance for Non-communicable Disease) survey in 2018, 21% of adults aged 25years or above had hypertension whereas half of them were unaware of having high blood pressure.⁵

The current paper presents the results of a blood pressure screening program conducted at a non-Government medical college of Bangladesh, on observation of world hypertension day. The general objective of this study was to identify and facilitate the reduction of blood pressure of those people who would require life style modification or pharmacological intervention. The specific objectives of this study were to find out socio-demographic profile of the participants, to categorize the blood pressure readings according to the defined variables, to select the people from the participants who require intervention and to encourage

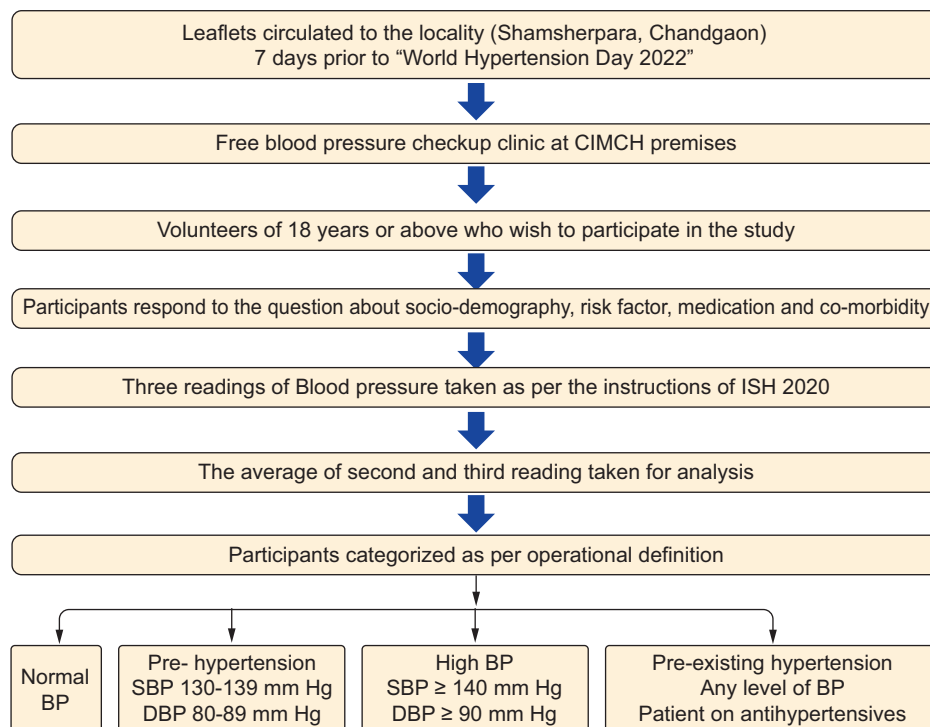
people in order to adopt healthy diet as well as lifestyle behaviors.

Methods:

It was a cross-sectional study conducted at outpatient department of Chattagarm International Medical College Hospital (CIMCH), Shamsherpara, Chattogram from 16.05.2022 to 19.05.2022. The study participants were volunteers of 18 years or older who wished to get the free blood pressure checkup on observation of world hypertension day at CIMCH outpatient premises. The data collection sheet included sociodemographic profiles, family history, drug history, co-morbidity and the correct reading of blood pressure using standard aneroid sphygmomanometer and following the instructions as per International Society of Hypertension (ISH) 2021 guideline.

Three blood pressures readings were taken at 5 minutes interval, and the mean of second and third reading of both SBD and DBP were taken for analysis.

Since this study was conducted as a part of awareness program, leaflets were circulated to the local area 7 days prior to the study. Participation was voluntary and verbal consent was taken from each participant. The patients were categorized as normal blood pressure and high



blood pressure accordingly. The blood pressure value of less than 120 mm Hg SBP and less than 80 mm Hg DBP was considered normotensive. SBP 130-139 mm Hg and/or DBP 80-89 mm Hg was considered pre-hypertensive. Since defining hypertension requires two or more office visit with high blood pressure recording, desisting using the term “hypertension”, “high blood pressure” was used as operational definition. High blood pressure was defined as average of 2nd and 3rd reading SBP ³140 mm Hg and/ or DBP ³90 mm Hg or anyone on antihypertensive drug therapy. All the patients were informed about hypertension and its target organ effects; all of them were counselled regarding lifestyle modification for prevention as well as control of hypertension. The contact numbers of the participants were preserved for the future follow up studies.

Results:

Altogether 232 patients participated in the blood pressure screening program, male to female ratio was 4:1 (Table 1). Among all participants, 10.7% were pre-hypertensives and 11.2% had high blood pressure; none of them were aware of their health condition, none of them visited any physician previously for checking blood pressure. Pre-existing hypertensives constituted 16.4% of total participants; nearly half of them had good compliance to medication or life style modification (Table II).

Table-I
Demographic distribution of the participants attending hypertension screening program

	Variable	Frequency (%)
Age (years)	Mean ±SD	40 ± 12.26
	Range	19 - 75
Sex	Male	137 (81%)
	Female	34 (19%)

Age distribution of pre-hypertensive and high blood pressure group showed maximum (26 out of 51) ‘pre-hypertensive’ and ‘high blood pressure’ in the 30-49 years age group (50.9%); which indicates more middle-aged population being unknowingly affected by hypertension (Table III).

The ‘pre-hypertensive’ and ‘high blood pressure’ were categorized according to presence of risk factors (smoking, overweight or obesity, family history, sedentary life style) and co-morbidity (DM, CKD) (Figure 1); the striking feature was presence of two or more risk factors in half of those under ‘pre-hypertensive’ and ‘high blood pressure’ category.

Table-II
Distribution of participants according to BP status

Total participants	Number (%) Normotensive	Number (%) pre-hypertensive	Number (%) High blood pressure (New)	Number (%) pre-existing hypertensives on regular medication	Number (%) pre-existing hypertensives not on regular medication or life style modification
232	143 (61.7%)	25 (10.7%)	26 (11.2%)	20 (8.6%)	18 (7.8%)

Table-III
Distribution of pre-hypertensive and high blood pressure groups according to age

Class interval	Pre-hypertensiveNumber	High blood pressureNumber
18-29 years	0	0
30 - 49 years	14	12
50 - 69 years	11	6
70-89 years	0	8

Discussion:

This pilot study revealed the findings of blood pressure screening program at a non-Government medical college hospital of Bangladesh. Mean age of patients was 40 years, which was a middle age; however, male to female ratio was remarkably high, indicating less accessibility of females to health care facilities. The majority of 'pre-hypertensive' and 'high blood pressure' population were distributed in the age group 30-49 years. However, this picture might be a tip of iceberg, since the apparently healthy middle age group does not often seek for medical advice or routine blood pressure checking unless any symptom arises. Though 61.7% had normal blood pressure, there might be missing of information on masked hypertension. Screening for masked hypertension would require future studies using home blood pressure monitoring or ambulatory blood pressure monitoring.⁶

As a part of global observation of May Measurement Month (MMM), the national Heart Foundation of Bangladesh organized a hypertension screening program in 16 districts of Bangladesh in 2019 (MMM19), which revealed 28% newly diagnosed hypertensive patients, that was higher than the reported national prevalence rate of 21%. In that study, only 46% of all pre-existing hypertensives had their blood pressure controlled; this finding indicated a treatment gap or compliance gap or both.³

As per the guideline from the world hypertension league, majority of people in low resource country are unaware of hypertension and do not have adequate access to health care system.⁷⁻⁸ Recommendation for community based blood pressure screening also came from systematic review of literatures.⁹⁻¹⁰

Limitation: In this study, sample size was small, data on blood pressure was documented only for a short duration and follow up visit was not included in the study. A community-based blood pressure screening program for a long period covering a wider area of city might reflect more representable data.

Conclusion:

Awareness of hypertension is the first crucial step in achieving target blood pressure goal and preventing lifelong consequences as well as morbidity. Community based blood pressure screening and patient education program for a longer period covering a wider area can be an effective approach to reduce the health and economic burden of hypertension as well its complications on the patient, family, society, nation, and the globe. The results

of the current pilot study might provide preliminary data and encourage for future prospective studies.

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