

## Original Article

# Socio-demographic, Clinical Characteristics and Status of Hypertension Control among Rural Hypertensive Patients

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### Abstract

Hypertension is an important independent predictor of cardiovascular disease, cerebrovascular accidents and death. The prevalence of cardiovascular diseases and hypertension is rapidly increasing in developing countries. A cross sectional study was conducted among 103 hypertensive patients during December 2009 to June 2010 in Goshair Hat Upazilla of Shariatpur District to determine the socio-demographic, clinical characteristics and status of control of hypertension in rural population. Respondents were distributed more or less equally among males and females. The mean  $\pm$  SD and median age of the respondents were calculated as  $59.97 \pm 11.12$  years, with 64% of them were included in the age group of 51 to 70 years. More than half of the respondents were housewives (51.5%), which were followed by businessmen (21.4%). Every three of five patients were over weight, while 22.3% respondents were obese. One third of the respondents were also diabetic (33%). None of the 103 patients had achieved the target for SBP (Systolic blood pressure) control ( $<140$ mm of Hg) and only 21.4% of the patients had achieved the target for DBP (Diastolic blood pressure) control ( $<90$  mm of Hg). Again none of the diabetic hypertensive patients had achieved the target for SBP control ( $<130$ mm of Hg) and only one patient had achieved the target for DBP control ( $<80$  mm of Hg). Overall five patients were found to have uncontrolled and severe hypertension (BP  $>180/110$  mm of Hg), all of whom were female. From this study control of hypertension was found poor among rural hypertensive population. For effectively combating the burden of hypertension in this population, education and awareness about hypertension needs to be given priority.

Key words: Hypertension, socio-demographic characteristics, rural area, control of blood pressure

### Introduction

Hypertension is a major cause of morbidity in developing countries which are in a state of

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epidemiological transition<sup>1,2</sup>. Hypertension affects nearly 26 per cent of the adult population worldwide<sup>3</sup>. Worldwide prevalence estimates for hypertension may be as much as 1 billion individuals and approximately 7.1 million deaths per year may be attributable to hypertension<sup>4</sup>. Studies from India and Bangladesh had shown upward trend in the prevalence of hypertension<sup>5-7</sup>. The age and sex adjusted prevalence of hypertension was found to be 32.2 per cent in a rural area of India<sup>8</sup>.

Hypertension is a major modifiable risk factor for cardiovascular diseases (CVDs) and a leading cause of the CVD burden worldwide<sup>9</sup>. The higher the blood pressure, the greater the chance of heart attack, heart failure, stroke, kidney disease and death<sup>10,11</sup>. Hypertension has been shown to be a major risk factor also for cognitive impairment and dementia<sup>12</sup>. It has been reported to be responsible for 57 percent of all

stroke deaths and 24 percent of all cardiovascular deaths in East Asians<sup>13</sup>.

Hypertension remains silent, being generally asymptomatic during its clinical course. As it is hidden beneath an outwardly asymptomatic appearance, the disease does immense harm to the body in the form of 'Target Organ' damage; hence, the WHO has named it the 'Silent Killer'<sup>14</sup>. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of associated health complications, although drug treatment may prove necessary in patients for whom lifestyle changes prove ineffective or insufficient<sup>15</sup>.

The prevalence of hypertension is increasing in trend. As most of the urban areas have access to health facilities, the hidden mass of hypertension in the community can be detected and treated. However situation is reversed in rural area. Information on the pattern and trends in blood pressure in these countries is important for health professionals to direct health planning, health resourcing, and public health interventions. This is why the current study was undertaken with a view to determine the socio-demographic, clinical characteristics and control status of hypertension among rural people of Bangladesh.

## Materials and Methods

A cross sectional study was conducted during December 2009 to June 2010 in Goshair Hat Upazilla of Shariatpur District to determine the socio-demographic, clinical characteristics and status of control of hypertension in rural population. Purposive sampling technique was adopted to select 103 hypertensive patients. Data were collected through face to face interview using a semi-structured questionnaire.

**Measurement of height:** Height was taken to the nearest 0.5 cm in standing position with shoes off, feet together, and arms by the sides by a non-stretchable tape fixed to a vertical scale. Heels, buttocks and upper back were in contact with the wall when the measurements were made.

**Measurement of weight:** Weight was taken to the nearest 0.5 kg with light clothing and without shoes by bathroom scales placed on a flat surface. The weighing machine was checked each day with a standard weight.

**Measurement of Body Mass Index (BMI):** Body Mass Index (BMI) was calculated as weight in kilograms divided by height in meters square. BMI was categorized according to World Health Organization (WHO) recommendations<sup>16</sup>.

**Measurement of blood pressure:** Blood pressure (BP) was taken after administration of the questionnaire. Respondents rested for at least 5 minutes in sitting position before the BP was recorded. The pressure was measured on the right arm using normal cuffs for adults fitted with a standard aneroid sphygmomanometer, placing the stethoscope bell lightly over the brachial artery. Pressures were usually recorded to the nearest 5 mm of Hg. Systolic blood pressure was recorded at the first appearance of sounds, and diastolic pressure was measured at phase V, disappearance of sounds.

All subjects were currently on anti-hypertensive medications or having written prescriptions of anti-hypertensive drugs, were classified as "hypertensive", irrespective of their current blood pressure reading<sup>17</sup>.

## Results

Respondents were distributed more or less equally among males and females. Females (51.5%) were just more than males (48.5%). The youngest of the respondents was 35 years old and the oldest aged 90 years. Sixty four percent of the respondents were included in the age group of 51 to 70 years. The mean  $\pm$  SD and median age of the respondents were calculated as  $59.97 \pm 11.12$  years and 60 years, respectively. (Table-1)

Table I. Distribution of the respondents according to age (n=103)

Age in completed years	Number of respondents	Percentage
$\leq 40$	4	3.9
41 - 50	21	20.4
51 - 60	35	34.0
61 - 70	33	32.0
>70	10	9.7
Total	103	100.0

More than half of the respondents were housewives (51.5%), which were followed by businessmen (21.4%). The day labors and service holders were the lowest group (2.9%). (Table-II)

Table II. Distribution of the respondents according to occupational status (n=103)

Occupation	No. of respondents	Percentage
Housewife	53	51.5
Businessman	17	16.5
Farmer	13	12.6
Retired /aged	10	9.7
Fisherman	4	3.9
Day labor	3	2.9
Service holder	3	2.9
Total	103	100.0

Anthropometric measurement showed that every three of five patients (61.2%) were over weight (BMI 25.0 to 29.9), while 22.3% respondents were obese (BMI ≥ 30.0). Only 16.5% had normal weight (BMI < 25.0). None of the respondents were underweight. Mean BMI of the respondents was 27.75 (± 3.13). (Fig-1)

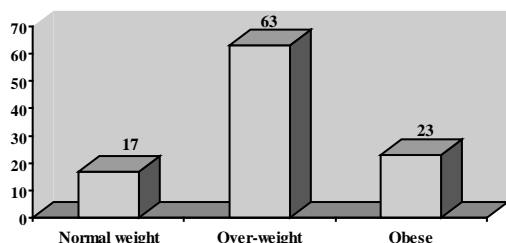


Figure 1. Distribution of respondents according to Body Mass Index (n =103)

Table III. Status of hypertension control among the respondents according to sex (n=103)

Characteristic (BP in mm of Hg)		Male (n=50)	Female (n=53)	Total (n=103)
Controlled 22 (21.4)	Systolic (<140)	0 (0.0)	0 (0.0)	0 (0.0)
	Diastolic (<90)	12 (54.5)	10 (45.5)	22 (100.0)
Uncontrolled and severe 5 (4.9)	Systolic (>180)	0 (0.0)	4 (100.0)	4 (80.0)
	Diastolic (>110)	0 (0.0)	1 (100.0)	1 (20.0)

(Figures in parenthesis represent Percentage)

Mean systolic blood pressure (SBP) and mean diastolic blood pressure (DSP) of the respondents were recorded as 155.00 ± 12.10 mm of Hg and 90.00 ± 8.44 mm of Hg respectively. None of the 103 patients had achieved the target for SBP control (<140mm of Hg). Only 21.4% of the patients had achieved the target for DBP control (<90 mm of Hg). Among those who had achieved the target for DBP, 54.5% of them were male and 45.5% were female. Five patients had uncontrolled and severe hypertension (BP >180/110 mm of Hg), all of whom were female. (Table-III)

One third of the respondents were diabetic (33%). Among the diabetic hypertensive patients 44.1% were male and 55.9% were female. But no significant sex differences could be found. (Fig-II)

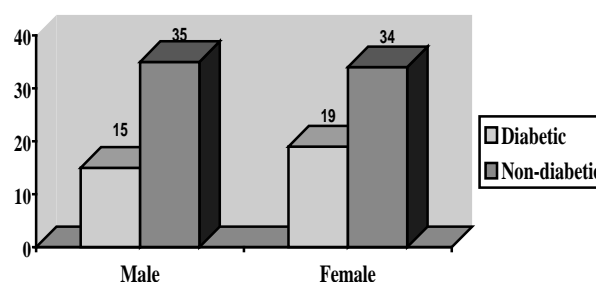


Figure 2. Diabetes mellitus among hypertensive patients according to sex

Among diabetic hypertensive patients (n=34) mean SBP and mean DSP were recorded as  $155.94 \pm 13.09$  mm of Hg and  $90.62 \pm 9.29$  mm of Hg, respectively. Again none of the 34 patients had achieved the target for SBP control (<130mm of Hg). Only one patient had achieved the target for DBP control (<80 mm of Hg).

## Discussion

This study was aimed to examine the socio-demographic, clinical characteristics and blood pressure control status of hypertensive patients of rural Bangladesh. A total of 103 patients with known hypertension were selected purposively to conduct the study. Current study was conducted among 50 male and 53 female. Studies had been shown that the incidence and the progression rate of cardiovascular disease and hypertension (CVDH) is markedly higher in men than in age-matched, premenopausal women<sup>17-19</sup>. But after menopause, this relationship no longer exists, and in old age women have similar rates of cardiovascular disease, and even higher prevalence of hypertension than men<sup>18-20</sup>. In the current study the mean  $\pm$  SD and median age of the respondents were calculated as  $59.97 \pm 11.12$  years and 60 years, respectively. Again female had slight higher mean age than male ( $60.19 \pm 8.95$  years vs.  $59.74 \pm 13.13$  years). This age structure of the study patients might have explained the inclusion of more female than male in the current study.

The Third National Health and Nutrition Evaluation Survey (NHANES III) showed that the prevalence of hypertension increases with advancing age to the point where more than half of people 60-69 years of age and approximately three-fourths of those 70 years of age and older are affected<sup>19</sup>. Accordingly in our study 60% of the respondents were included in the age group of 51 to 70 years and more than half of the patients were 60 years or above. In our study more than half of the respondents were housewives (51.5%). More than half of the included respondents were female and majority of adult female in Bangladesh are housewives. This might explained the high proportion of housewives in the current study sample. Housewives were followed by businessmen (21.4%), most of them were small shopkeepers. Their sedentary life style in comparison to other professions in rural area might have included them in the second high proportionate group. The day labors and service holders were the lowest group (2.9%). Although most of the rural people work very hard in their household activity and very simple in their food habit, the relation between rural life and hypertension is

unknown. The concordance of hypertension and diabetes is increasing in the population; hypertension is disproportionately higher in diabetics<sup>21-23</sup>, while persons with elevated BP are two and a half times more likely to develop diabetes within 5 years<sup>24</sup>. In our study one third of the respondents were also found diabetic. The coexistence of hypertension in diabetes is particularly pernicious because of the strong linkage of the two conditions with all CVD, stroke, progression of renal disease and diabetic retinopathy<sup>10</sup>.

Treating SBP and DBP to targets that are <140/90 mmHg is associated with a decrease in CVD complications<sup>10,25</sup>. In our study none of the 103 patients had achieved the target for SBP control and only 21.4% of the patients had achieved the target for DBP control according to JNC-VII recommendations<sup>10</sup>. A study conducted in five Asian countries including Bangladesh found that proportion of the population on anti-hypertensive treatment whose blood pressure was controlled (<140/90) ranged from less than 1 to 11 percent<sup>26</sup>. Another study found that of those undergoing treatment, the blood pressure was adequately controlled in only 18.1 percent<sup>8</sup>. National Health and Nutrition Examination Survey in USA found during 1999-2003 that blood pressure was controlled in 34% of the patients on antihypertensive medication<sup>10</sup>. So, control status of blood pressure was far below the target for our study population. Hazarika et al. found that 50.4% of the subjects on treatment had uncontrolled and severe hypertension (BP >180/110 mmHg)<sup>8</sup>. On the contrary our study found that five patients had uncontrolled and severe hypertension (BP >180/110 mm of Hg), all of whom were female. So special attention should be paid for treatment of female hypertensive patients. In patients with hypertension and diabetes or renal disease, the BP goal is <130/80 mmHg<sup>27</sup>. Again we found that none of the 34 patients had achieved the target for SBP control and only one patient had achieved the target for DBP control. This picture demand special emphasis on effective management of diabetic hypertensive patients.

Our study had certain limitations. Subjects for the study were chosen from a single locality and thus may not be representative of rural population throughout Bangladesh. Again blood pressure measurements were taken on a single day and were not be repeated again for practical reasons. Hence, we may have wrong interpretation about the status of blood pressure control.

## Conclusion

From this study it is evident that hypertension is not only a concern of the urban population, but also a matter of debate in rural areas. Most of the hypertensives were not aware of their blood pressure, and the treatment rate was poor followed by control of hypertension. Hypertension simulates iceberg phenomenon of diseases. Therefore, a stringent public health effort is the remedial for the detection, control, and prevention of complications of hypertension. For effectively combating the burden of hypertension in this population, education and awareness about hypertension needs to be given priority.

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