

Magnitude of hypertension among adult residents in mizan-aman town, bench maji zone, Southwest Ethiopia—a descriptive cross-sectional study

Abstract

Background: Hypertension has been considered as one of the major public health challenges across the globe because of its high frequency and associated risks of cardiovascular and kidney diseases such as myocardial infarctions, strokes and renal failures. Hypertension is a growing public health problem in many developing countries including Ethiopia. Despite their growing importance in sub-Saharan Africa (SSA), including Ethiopia, hypertension and other cardiovascular disease were not given due attention. Little is known about the prevalence of hypertension in Ethiopia including Mizan Aman. Therefore, this study would fill the existing information gap in this area.

Objective: The objective of this study was to assess the magnitude of hypertension among adult residents in Mizan Aman town, Bench-Maji Zone, South West Ethiopia, 2017.

Method and material: Community based cross sectional study was conducted in Mizan Aman town from April to June, 2017. Cluster random sampling method was used to select the sample. The data was collected using World Health Organization STEP wise approach guideline on Non Communicable Disease risk factor surveillance questionnaire. The Amharic version questionnaire was used for data collection. The data was entered and analyzed using SPSS statistical software. Hypertension was defined as Blood pressure greater or equal to 140/90 mmHg. Ethical issues were addressed appropriately prior to data collection time.

Results: A total of 346 respondents were included this study. The response rate was 97.4%. The findings declared that 17.3%, 10.6%, and 4.6% of respondents were pre hypertension, hypertension stage I, and hypertension stage II, respectively, on screening test. The overall prevalence of hypertension was 23%.

Conclusion: This study showed that there was a high prevalence of hypertension in this population. Also this prevalence indicates there would be a high risk of developing stroke, cardiovascular and kidney disease. Therefore; it was recommended to do mass screening and to consider appropriate intervention as much as possible by different concerned stakeholders.

Keywords: hypertension, prevalence, blood pressure, mizan aman

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Introduction

Hypertension, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated.¹ It is asymptomatic and is usually diagnosed incidentally or after major organ damage has occurred. It is sometime said as the “silent killer” because it often has no warning signs or symptoms, and many people do not realize they have it.² Hypertension is a preventable and modifiable risk factor of Cardio Vascular Disease (CVD) and it is recognized as a risk factor for myocardial infarction, stroke, congestive heart failure, end stage renal disease and peripheral vascular disease.³ The effect of hypertension in every aspect of individuals’ life is worse. It is not only an important public health problem; rather, it will also have a big economic impact due to loss of productive population in association with long lasting illness or death.⁴ Globally, non communicable diseases (NCDs) including hypertension have been a major cause of morbidity and mortality until a current time. These diseases account for two-thirds of all

deaths worldwide.⁵ It is considered as one of the major public health challenges because of its high frequency and associated risks of cardiovascular and kidney diseases such as myocardial infarctions, strokes and renal failures.⁶ As a consequence it is recognized as the major risk factor for death, responsible for 9.4 million deaths and 7% of disability worldwide which makes it the single most important cause of morbidity and mortality worldwide.⁷ According to the world health organization (WHO) global health observer report, globally, the overall prevalence of Hypertension in adults aged 25 and over was around 40%. It is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths worldwide.⁸ Hypertension is not confined in some region only; rather it is a worldwide public health challenge and a leading modifiable risk factor for cardiovascular disease (CVD) and death. However, its magnitude varies among nation and sub-population. The prevalence of hypertension was found to be higher in developed countries. For instance, it is one of the major causes of death in all developed countries accounting for 50% of all deaths.⁹

Most recently communicable disease has been shifting towards non-communicable diseases and developing countries are facing what is known as double burden diseases.¹⁰ Starting from a recent time hypertension has become a significant problem in many developing countries, including Africa, undergoing epidemiological transition. Even if hypertension was thought to be rare in Africa but it is now recognized as one of the most important cerebro vascular disease contributing for about 40% of these disease on the continent.¹¹ Despite their growing importance in sub-Saharan Africa (SSA), hypertension and other cardiovascular disease were not given due attention.¹² The epidemiology of hypertension in Ethiopia is not well studied. Some community-based surveys have shown that the prevalence of hypertension in the country varies from 1.8% in the rural community to 30% in urban areas of Addis Ababa.¹³ However, majority of the study conducted in our country on hypertension are institutional based despite its being few in number. Hence, it is appropriate time to assess the prevalence of hypertension among resident of Mizan Aman town. Hypertension is one of the most modifiable risk factors of cardiovascular diseases. However, the effort made to prevent and control of hypertension has been low in many developing countries including Ethiopia. To design appropriate strategies to curb the magnitude of hypertension related illness and death it is imperative to have data related with its prevalence. However, data related with magnitude of hypertension was not sufficient. Therefore, there is a need to fill the gap regarding the magnitude (prevalence) of high BP which encouraged the conduct of this study. The finding of this study would be useful to Zonal Health Department to take appropriate measure in the community. Also this study would contribute to health institution to early detection of hypertension and it help to as reference for other researcher in this study area.

Objective

The objective of this study was to assess the magnitude of hypertension among adult's residents in Mizan Aman town, Bench-Maji Zone, South West Ethiopia, 2017

Methods and materials

Study area and period

The study was conducted in Mizan-Aman town, the capital of Bench Maji zone in Southern Nations Nationalities Peoples Region (SNNPR) from April 13 to June 2017. It is about 561 kilometers far away to southwest of Addis Ababa, capital of Ethiopia. There are five Kebeles (smallest administrative unit) in Mizan-Aman. The total population of Mizan-Aman town is estimated to be 52, 210, of the total 18, 625 of them are male and the rest 33,585 are female. From total population 31,135 estimated to be adults of whom 17,233 are female and 13,902 are male. Mizan- Aman town have one health centers, one hospital, one university and there are 15 private clinics in the town. This information was gathered from zonal health office (2016).

Study design

A community based cross-sectional study was used to determine the magnitude of hypertension among adults of Mizan Aman town.

Study population

The source population for this study includes all adults residing in Mizan-Aman town. While all adults who were residing in two

selected kebele and included in the sample was considered as the study population.

Inclusion and exclusion criteria

Individual whose age was 18 years and above and who have been residing in the study area for 6 six month and above was included in the study while women who are pregnant during the study time were excluded from this study.

Sample size determination

The sample size for this study was determined using the formula for single population proportion by assuming: Level of confidence taken to be 95%, 5% margining of error and P is the prevalence of Hypertension which is 30.7% taken from urban area of Addis Ababa.¹³ Based on these assumptions the total sample size for the study including 10% non response was determined to be 355.

Sampling techniques and sampling procedures

A cluster random sampling strategy was used to select study participants. First, two Kebeles (Addis Ketema kebele and Kometa kebele) was selected using simple random sampling out of five Kebeles in the town. Secondly, households were allocated proportionally to each selected kebele and the household was selected within each kebele using the systematic random sampling technique. Finally, one individual was selected out of eligible adults in each household using simple random sampling technique (Figure 1).

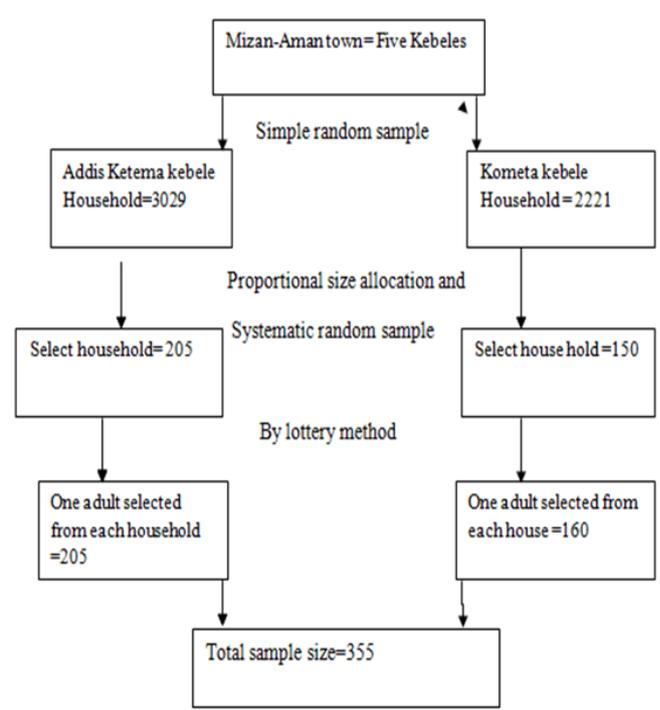


Figure 1 Schematic presentation of sampling procedure to assess the prevalence of hypertension among adult residents in Mizan Aman town, Bench Maji zone, SWE, 2017.

Data collection tools

The data was collected using an adopted World Health Organization

(WHO) step wise surveillance questionnaires for chronic disease risk factor.¹⁴ It has two parts: Initially, data was collected through interview questionnaires to assess the socio demographic data. Secondly, blood pressure was measured using standard calibrated instrument.¹⁵

Data collection procedure

Data was collected by four graduating class students of nursing department. Training was given for data collectors on how to collect the data, and undertake measurement of blood pressure procedures by the principal investigator. Blood pressure was measured using a mercury sphygmomanometer BP cuff with the appropriate cuff size that covers two - thirds of the upper arm after the participant rest for at least five minutes and no smoking or caffeine 30 minutes before measurement. The blood pressure was taken in sitting position. Three measurements of BP on single visit were taken at least 3 minutes apart and the average of the three records was used for computation of results.

Data quality management

The Questionnaire was translated from English to Amharic version to ensure its clarity. Pre-test was done on 5% of the study participants in Hibret kebele. After the pre-test the questionnaires were revised. A data collector was trained on how to fill the questioner and procedures of measuring blood pressure by principal investigators. Data was checked for its completeness throughout the data collection time by supervisor.

Data analysis

The collected data was processed and analyzed manually by using scientific calculator. The result of analysis was presented using tables. The study variables include magnitude of hypertension, socio-demographic variables such as age, sex, ethnicity, religion, marital status, occupation and educational status.

Operational definition

Hypertension: was defined self-reported use of antihypertensive medication within the past 2 weeks or an average systolic BP at or above 140mmHg or/and an average diastolic BP at or above 90 mmHg including isolated hypertension. Three measurements of BP on single visit were taken at least 3 minutes apart and the averages of the three records were used for computation of results.

Ethical consideration

Official letter was obtained from college of health sciences, department of nursing. Participant’s consent was obtained before they are recruited to participate in the study. Names and other personal information which can violate the confidentiality of the respondents were not being taken. Any information was kept confidential and only used for research purpose and not exposed to third party for any other reason. During data collection privacy of respondents was kept. About the benefit of the study was also explained to the respondent those with newly detect hypertension was advice to start follow-up treatment at the hospital or nearby health facility.

Dissemination plan

The finding of the study would be submitted` to Mizan Teppi University, Bench Maji zone Health Department and other concerned stakeholders.

Results

Socio-demographic characteristics of the study participants

A total of 355 study participants were planned to be included in this study. From the desired sample size 346 of them were found during data collection time and hence the response rate was 97.4%. From the total study participants majority, 222 (64.1%), of them were female. Regarding the literacy level of respondents 95 (27.4%) was completed primary education. The most widely distributed ethnic groups were Bench, 98 (28.3%). More than half, 219 (63.2%), of study participants were married and 144 (41.6%) of all study participants were Christian orthodox followers. Regarding occupational status of respondents’ most, 111 (32.0%), of them was found to be house wife (Table 1).

Frequency distribution of blood pressure

Out of the total study participants, 206 (59.5%), of them were had normal blood pressure whereas, 60 (17.3%), 38 (10.9%) and 20 (5.78%) of respondents had pre hypertension, hypertension stage1 and hypertension stage 2 respectively. The prevalence of known hypertensive patients who were taking antihypertensive drugs during data collection time were 22 (6.35%). Among all hypertensive people identified, the magnitude of respondents with isolated systolic hypertension (systolic BP greater than or equal to 140 mmHg) was 4 (1.15%) and isolated diastolic hypertension (diastolic BP greater than or equal to 90 mmHg) was 11 (3.17%) on screening (Table 2).

Table 1 Socio demographic characteristic of study participants in Mizan Aman town, Bench Maji zone, SWE, 2017

Variable	Category	Frequency	Percentage (%)
Sex	Male	124	35.8
	Female	222	64.1
Age group	18-25	51	14.7
	25-34	67	19.3
	35-44	86	24.8
	45-54	84	24.2
	>55	58	16.7
Occupation	Farmer	53	15.3
	Merchant	54	15.6
	Government employee	84	24.2
	House wife	111	32
Religion	Other	44	12.7
	Orthodox	144	41.6
	Protestant	106	30.6
	Muslim	93	11.2
	Catholic	3	0.86

Table continued..

Variable	Category	Frequency	Percentage (%)
Ethnicity	Bench	98	28.3
	Amhara	95	27.4
	Oromo	42	12.1
	Tigray	20	5.78
	Keffa	31	8.95
	Gurage	31	8.95
	Other	29	8.3
	Married	219	63.2
Marital status	Single	92	26.5
	Separated	3	0.86
	Divorced	15	4.3
	Widowed	17	4.9
Educational status	Able to read and write but not formal	24	6.9
	Primary school	95	27.4
	High school	62	17.9
	Preparatory	15	4.3
	Diploma and above	117	33.8
	Cannot read and write(illiterate)	33	9.5

Table 2 Frequency distribution of blood pressure among adult residents in Mizan Aman Town, Bench Maji zone, SWE, 2017 (n = 346)

Variable	Category	Frequency	Percentage (%)
Level of HTN in screening	Normal	206	59.5
	Pre- hypertension	60	17.3
	Hypertension stage 1	38	11
Taking medication (anti hypertensive drug)	Hypertension stage 2	20	5.8
	Taking medication (anti hypertensive drug)	22	6.4
Diagnosed as hypertensive	Yes	80	23
	No	266	77

Overall prevalence of hypertension among respondents

The overall prevalence of hypertension among studied participants in Mizan Aman town was 80 (23.0%). From those hypertensive study participants 50 (22%) of them were female and, the rest 30 (24%) were male (Figure 2).

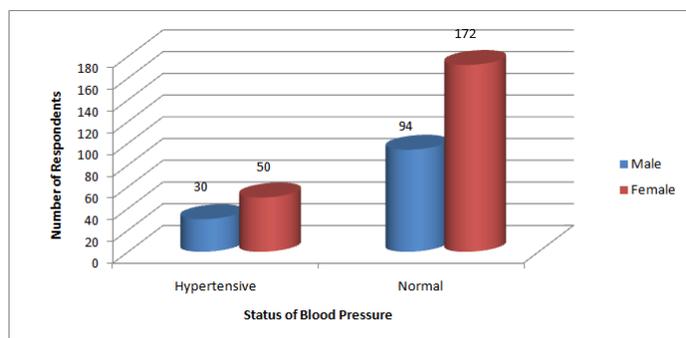


Figure 2 Overall prevalence of hypertension among study participants based on their sex in Mizan Aman town, Bench Maji zone, SWE.

Discussion

This study was conducted to determine the magnitude of hypertension among adult peoples of Mizan Aman town. A total of 346 illegible study participants were assessed. According to the finding obtained by this study the overall prevalence of hypertension in Mizan Aman town was 23%. This finding was found to be lower than a result obtained in Vietnam where the prevalence of hypertension was reported to be 14.1%.¹⁶ This difference might be due to difference of the life style as well as health service provision between the two countries. Also it is identified that hypertension is more prevalent in low and middle income countries (LMIC), compared to the high-income countries.¹⁷ However our finding was much lower than a study conducted in Tibet reported that the crude prevalence of hypertension was 55.9%. This discrepancy might be due to urbanization. It was

also seen to be higher than other similar studies conducted in different regions of Africa. For instance, the prevalence of hypertension in Sudan¹⁸ and in Eritrea¹⁹ was 18.2% and 16% respectively. The finding was somehow less when compared to A study conducted in Gondar which showed that the overall prevalence of hypertension was 28.3%.²⁰ This might be attributed to discrepancy in the number of sample size used by the two studies.

During screening study participants were categorized in to categories depending on their status of BP. Accordingly, in this study 17.3%, 10.9% and 5.78% of respondents had diagnosed as pre hypertension, hypertension stage1 and hypertension stage 2 respectively. This finding was coherent with a result obtained in Bahir-Dar town where 17.6%, 19.8%, 2.2% of respondents were found to be pre hypertension, hypertension stage1, and hypertension stage2 respectively.²¹ The finding of this study revealed that there was variation in level of hypertension among females and males. It was found that the magnitudes of hypertension among male adults were 24% and among female adults were 22%. This finding was lower than a finding obtained from a community-based study conducted in Addis Ababa, where the prevalence of hypertension among males and females were 31.5% and 28.9%, respectively.¹³ The finding of both studies showed that the magnitude of hypertension was higher among men respondents than females. This might be happened because men are more commonly exposed to different risk factors of hypertension than women.

Limitation of the study

The study was not included risk factors of hypertension, i.e. this study focused on measuring the prevalence of hypertension among study participants.

Conclusion

This study showed there was high prevalence of hypertension in this population. And also the study further implies that of the respondents were in pre hypertension stage, which adds to the overall future risk of hypertension. Also this prevalence indicates high risk of developing stroke, cardiovascular and kidney disease in this community.

Recommendation

Based on the findings of the study it was recommended that Mizan Tepi University teaching hospital and Mizan Health Center should be involved in regular screening and treating as well as creating awareness to decrease hypertension in the community. Also it would be better if zonal Health Department and other stakeholders make appropriate intervention measures at the community level via giving more emphasis on mass screening of hypertension so that early detection and intervention would be possible. Finally, researchers should be involved in conducting advanced study which addresses risk factors for hypertension.

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Conflict of interest

Author declares that there is no conflict of interest.

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